

May 1988

The National Locksmith®



Vehicle Security Issue

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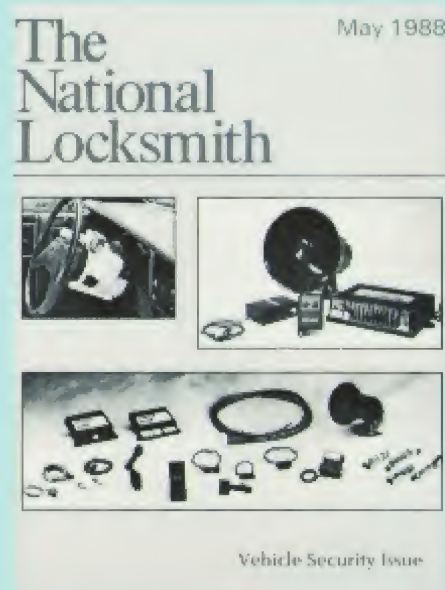
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On The Cover

Our vehicle security issue features: (clockwise from top right) Code-Alarms's "XT" Security System; Crimestopper Security Product's Commander™ vehicle alarm system; and the Lok-Itt Company's Steering Wheel Lock. See pages 29-37 for more information on more vehicle security products.

**Click on the article
you wish to read**

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Editor/Publisher Marc Goldberg
Managing Editor Sandy Kucharski
Editorial Assistant Debbie Schertzing
Circulation Manager Barbara Coulam
Production Consultant Marian Raney
Technical Editor Robert Sieveking
Technical Writers E. Lee Griggs, Ed Hill, Regis McCafferty, Dave McOmie, Don O'Shall, Jack Roberts, Shirl Schamp, Steve Spiwak
Advertising Sales Thomas Mlodoch
Technical Advisors Richard Bushe, Hollis DeVines, Robert Robinson, Sean DeForrest, Bert Michaels



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Commentary

Goodbye and Hello

This is the most difficult *Commentary* I have ever had to write. Recently, two of my favorite people have passed away and I find it appropriate to say a few words about each of them here. Lee Rognon has gone to join her husband, Bob. I got to know Lee only in 1984 when she was selected as that year's recipient of The National Locksmith Award.

Lee served as the first Executive Secretary to the group, which included her husband, that formed ALOA. The story goes that the first meeting took place in a Philadelphia kitchen among locksmiths interested in forming an organization. Lee actually was the driving force of ALOA for many years. When the founders had decided upon a philosophy for the group, Lee got down to work and helped make that philosophy into reality.

Lee served as director of the convention for ALOA, overseeing the first really national meetings for locksmiths. She was later appointed the first Executive Director of the group, a position which she held until 1974. This was a relationship of twenty years.

But Lee's interest in ALOA and the betterment of locksmithing never did wane. Way into the 1980's Lee attended the convention each year. A couple of years ago she and I had a long discussion on the state of the industry. This conversation was held in the snack lounge at an ALOA convention. Lee's lunch that day was a large bag of potato chips and a Pepsi. I commented that her food didn't look too nutritional. She sheepishly confessed that junk food was her secret voice. That was Lee's secret. But it was no secret that Lee devoted herself to the locksmith, and we should be grateful.

Generally speaking, I am a private sort of person. I have never really felt that I should fill up this column with personal stories about my travels or my family. Instead, I have tried to concentrate on the issues facing our industry today. Of course, many of my family members do receive *The National Locksmith* and they read it religiously. Often I have been tempted to say hello to my family and friends through this page. But I have resisted that urge because I want to talk about the larger issues. This month, however, I am making an exception to my own rule. Unfortunately, though, I need to use this opportunity not to say hello, but instead to say goodbye to someone close to me.

Sylvia Schwartz was the daughter of the founder of Taylor Lock Company. She was also my grandmother. This makes me the fourth generation of my family to be involved in the industry. Sylvia would sometimes tell us of the early struggles as her father and husband, Nathan, and brother, Bill, built the company. But she also spoke of other things which interested her. Sylvia had three great passions in her life...art, travel, and her grandchildren.

The arrival of *The National Locksmith* each month was an occasion for my grandmother. And often I would be surprised how she would read each issue in great detail, and that she was interested in discussing with me various aspects of the business. Sylvia Schwartz was part of the ever changing background of this industry, and I will miss her very much.

My grandfather Nathan used to say that life is a brief journey which we are all privileged to take. Although I am very saddened by the loss of Lee Rognon and Sylvia Schwartz, I believe that we were lucky to have had them as long as we did. We will always remember them both.

To each of my family and friends reading this page—I count all of you readers in this category—I want to say a personal hello. Each of you is important to me.



Marc Goldberg
Editor/Publisher

May 5

Letters

Comments, Suggestions and Criticisms

The National Locksmith is interested in your views. We do reserve the right to edit for clarity and lengths. Please address your comments, praise, or criticism to: Editor, The National Locksmith, 698 Bonded Parkway, Streamwood, IL 60107.

Interfering With Police Work?

Recently one of my employees happened to be in a department store parking lot and noticed a police officer trying to open a GM automobile. Marv, my employee, was going to offer his assistance but decided against it due to the officer's bad mood at the time. Instead, Marv spoke with the car owner. He informed her that her road service contract would have covered the cost of a locksmith.

After 20 minutes of trying, the officer got the car door open but in the process his homemade Slim Jim got caught. The harder the officer pulled, the angrier he got. Marv, did not offer to assist at this point since he saw that damage had been done to the car. But he did inform the car owner that she could sue the officer for the cost of repairs. Then Marv left.

I received a call shortly thereafter from the police department threatening to arrest my employee for interfering with police work. I wrote a letter back to the department, as well as the mayor and city council members, stating that I did not feel that my employee did anything illegal. The chief of police sent me a letter in return. As of yet, nothing is solved.

Glenn Pelton, Sr.
Michigan

Editor's Note: Mr. Pelton enclosed a copy of the chief of police's letter. He stated that the department is attempting to discontinue vehicle lock outs, but that he would authorize his patrol officers to arrest anyone who in their opinion is obstructing their performance.

Hawkins Comments On Mercedes Lock Feature

As a specialist in servicing foreign automotive locks these comments and/or corrections are directed to the article "A New Mercedes Lock" on page 42 of the February 1988 issue of *The National Locksmith*.

The lock in question was introduced on the 1986 Model 300 E and 300 D Mercedes that appeared in the showrooms in late 1985. It is also now found on the 1988 Models 300 TD (Wagon), and the 260 E and the 300 CE.

In the second paragraph of the article where Steve refers to the 380 CE, I believe this is probably a typographical error as Daimler-Benz does not make a 380 CE. I assume that he meant the 300 CE. Also on page 44, center column the article refers to a 350 CE which is also a typographical error.

On page 48, last column, Steve refers to the Maximum Adjacent Cut Separation or MACS. His MACS of 2 is incorrect. Locks have been found that do have adjacent cuts of a 1,4 or 4,1 and also 2,5 or 5,2. Also a number 1 split disc in opposing spaces is a very common occurrence. When the key blank is properly prepared with number 1 cuts the full length on both sides it will pass through the number 1 tumblers.

Last correction is to the listing of spacing and depths on page 76. The correct measurements are as follows:

Spacing	Depths
1 .185 (4.7mm)	1 .299 (7.6mm)
2 .287 (7.3mm)	2 .275 (7.0mm)
3 .390 (9.9mm)	3 .252 (6.4mm)
4 .492 (12.5mm)	4 .228 (5.8mm)
5 .614 (15.6mm)	5 .205 (5.3mm)
6 .705 (17.9mm)	Key Blank width
7 .795 (20.2mm)	.309 (7.85mm)
8 .886 (22.5mm)	

The spacing of the first four tumblers is .102 (2.6mm) then a wide space of .122 (3.1mm) between the 4th and 5th tumbler. The spacing then changes to .091 (2.3mm).

Information on Space & Depth keys for these locks and other Hi-Security keys can be obtained by writing to me, Lynn Hawkins at P.O. Box 20547, El Cajon, CA 92021.

Lynn Hawkins
California

Mc Omie Article Saves The Day

Recently I had the opportunity to open a Diebold jeweler's chest that was uncovered in a pile of dirt.

I know somewhere in my file of articles there was an article on opening these safes. After doing a little digging in my books I found the article. It was one of Dave Mc Omie's from the November 1987 issue of *The National Locksmith*. It was the model pictured in photograph five on page 20.

After reading through it, all the information I needed seemed to be there. I found the center of the door, made a 3½" wire with a 90 degree bend on one end for a pointer, because we didn't want to ruin the dial. It wasn't a dial with a screw. We made the intersection at the centerline as stated in the article. I took out one of the mini-dials that comes with a kit that is used to drill under the dial and line up the gates, and made my mark at #15, 1¼" out. I got out my Bosch drill, chucked up a ¼" bit and started to drill. About ¾" in, I hit hardplate. I took out the regular bit and chucked up a ¼" hardplate bit. I hooked up my homemade pressure bar and chain and continued to drill. At about 2", I broke through.

I opened up my borescope and looked in and right below the hole I drilled, I spotted the wheels. I dialed all four wheels around and then transferred to about 85 and presto, the chest was open.

An opening that I thought was going to be the worst one I had ever done, was as easy as could be, thanks to your article.

Continued on page 84

Enter the 1988 Technitips Contest

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HPC Club



First Prize

Reproduces a wide range of dimple and milled keys. You'll be able to duplicate many high security keys for high profits.

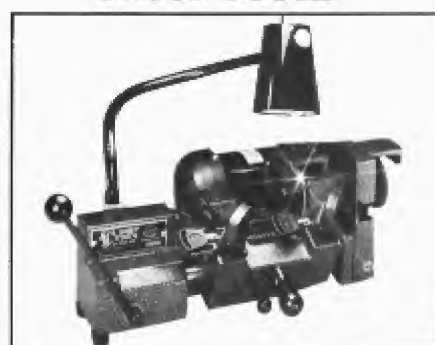
The Free Flo



Second Prize

Designed to cut Medeco® and Emhart® keys. Duplicates a Medeco® key very quickly and accurately. Will also cut regular cylinder keys. By Fulton Lock.

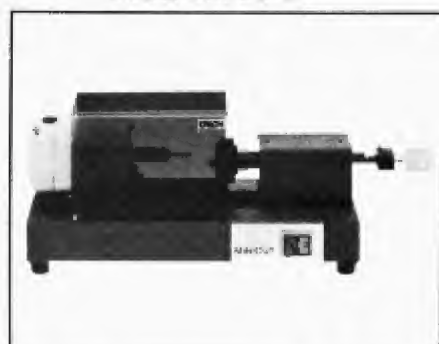
Saber Tooth



Third Prize

A fast semi-automatic duplicator featuring carbide cutter, full 1/3 hp motor, 2400 rpm. Working lamp and deburring brush are standard. From The Locksmith Store.

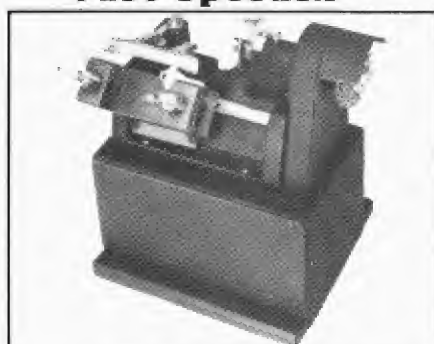
Ilco KD94



Fourth Prize

Cuts the 1137 tubular key, brass or steel accurately and quickly. Features include large chuck to hold standard size key heads, easily adjustable.

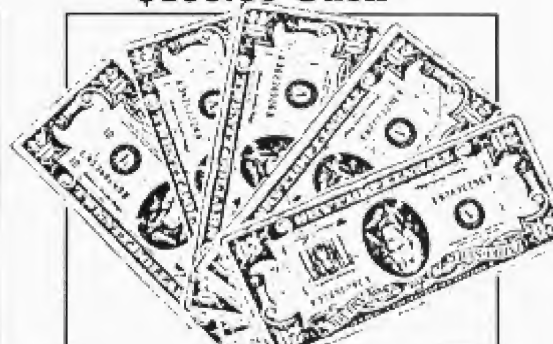
9150 Speedex



Fifth Prize

The Speedex has been transformed from the old stand-by to the machine for today's needs. Features double sided jaws. From HPC.

\$100.00 Cash



Sixth Prize

Everyone can use a few extra dollars! This prize will brighten your day...and fatten your wallet.

Contest Rules

All you need to do to enter is submit a tip, covering any aspect of locksmithing to *The National Locksmith*. Certainly, you have a favorite way of doing things that you'd like to share with other locksmiths. Why not write it down and submit it to: Steve Spiwak, Technitips' Editor, *The National Locksmith*, 698 Bonded Parkway, Streamwood, IL 60107.

Tips submitted to other industry publications **will not be eligible!** So get busy and send in your tips today! You may win cash, merchandise, or even one of several key machines! At the end of the year, we choose the winners of the above prizes.

Last year dozens of people walked off with money and prizes. Wouldn't you like to be one of the prize winners for 1987? Enter today! It's a lot easier than you think!

Every Tip Wins 'Locksmith Bucks!'

Yes, every tip published wins a prize. But remember, you must submit your tip to *The National Locksmith* exclusively. Each and every tip published in Technitips wins you \$20.00 in Locksmith Bucks! Use this spendable cash toward the purchase of any books or merchandise from *The National Locksmith*. You also receive a Bonded Locksmith bumper sticker, decal and patch. Plus you are now eligible for the really big prizes!

Best Tip of the month prizes!

If your tip is chosen as the best tip of the month, you will win \$50.00 in cash as well as \$30.00 in Locksmith Bucks! Plus you will receive a quartz Locksmith watch, a Bonded Locksmith bumper sticker, decal, patch and a Locksmith Cap. Plus, you may win one of the great prizes pictured above.

Technitips

Helpful Hints from Fellow Locksmiths



Send me your Technitips. Who knows, you may be our next winner! c/o The National Locksmith, 698 Bonded Parkway, Streamwood, IL 60107.

by Robert Sieveking

We welcome Bob Sieveking as the new editor of Technitip's. Be sure to send him your tips!

As the new Technical Editor of The National Locksmith magazine, I accept this new challenge with a resolve to help make this column, and its contents as technically accurate and professional as possible. As a locksmith myself, I find that the Technitips column has always been the first thing I read when The National Locksmith hits my desk. By the nature of the locksmithing business, we don't have much opportunity to exchange tips and ideas with others in our field since the great majority of shops are one man operations. This column is YOUR COLUMN. The tips and tricks contained in Technitips, are YOUR TIPS.

As I read through the mail bag, I was impressed with the number and quality of tips received. Whether the tip was by the newest apprentice or the most seasoned master locksmith, all were accounts of having solved a particular problem for a customer. Locksmiths are the problem solvers of the security field, and innovators and inventors. The solutions are as varied as the problems they solve, and as unique as the locksmiths who conceive them. By sharing some of our best tips, we improve the quality of service we give our customers. If you excel in your craft, you deserve the recognition of your fellow locksmiths.

Aside from having the recognition of having your tips read by thousands of your fellow locksmiths, every tip published wins special prizes. The PRIZES ARE YOURS. To claim your prizes, send in your Technitips.

I look forward to hearing from you!

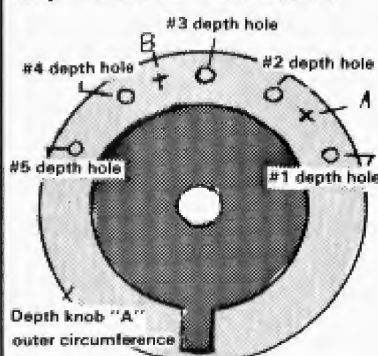
May's Best Tip

This tip pertains to the modification I made to my Ilco Unican Exacta code machine. The modification enables me to cut try out keys for the Ford 10-wafer door and ignition locks.

I modified the depth knob (P-25) as follows: Remove the depth knob (P-10) by unscrewing the depth knob screw (P-25).

Refer to illustration one. You will

Depth knob "A" modification



Note: Drill holes at point A and B same size as the existing holes, and to the same depth.

Illustration 1

see that the inner side of the depth knob has a series of holes (5) around the outer circumference. Each of these holes represents a different depth of cut. One for each of the five depths. Detent assembly (P-16) engages each hole as the depth knob is rotated, locking in each depth. By drilling two holes, the same size as the existing holes, as indicated in the illustration at "A" and "B," the depth knob will lock in at these half depths. This will allow you to cut half depths that are required to cut the try-out keys.

Select a point along the thin shiny wear line which runs from hole to hole, mid-way between the holes indicated. Carefully and accurately measure this distance and center punch the location for the new

holes. Drill the holes the same size and depth as the existing holes. Assemble the machine. You are now able to cut the 1½ and a 3½ depth, as required for the published try-out key set.

Milton Chanove Jr.
Missouri

When making a first key for a safety deposit box lock, even the most experienced locksmith can have a real time with six or seven levers inside. (See illustration 2.) I've found it's a lot easier

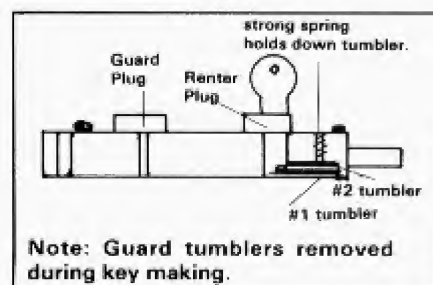


Illustration 2

to fit a key to the lock by cutting the key one lever at a time. This is accomplished by removing all the levers except the very bottom one. The bottom lever is held tight to the bottom of the lock case by a spring, installed over the lever post in the lock and held down by the lock case cover. This way, the key can be fit to the lever without the interference of the other levers in the lock.

After the first lever is fit, the lock cover is removed and another lever is added. The spring is replaced and the cover reinstalled. Then the key is filed to operate the lock, as before. This process is repeated until all the levers have been installed into the lock. Three different springs, of decreasing length are used. As more levers are added to the lock, progressively shorter springs are used to hold the levers tight to the bottom of the lock case. This allows the locksmith to hand file a key to the lock

one lever at a time.

R. Lazich
Wisconsin

I have been reading *The National Locksmith* for about three years now and I've always wanted to send in a tip. Well, I've finally come up with something that works. It's a credit card sized Jimmy lock opening tool. It's easy to make and you can carry it in your wallet so you always have it when you need it. (See illustration 3.) To use,

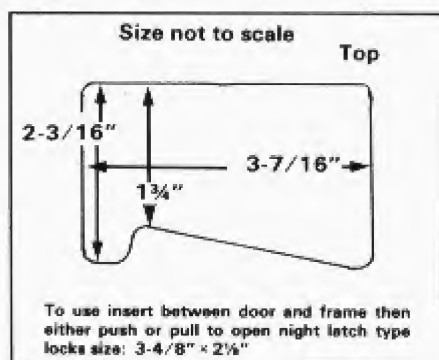


Illustration 3

insert it between door and frame then

either push or pull to open the night latch type locks.

Charles Martin
Illinois

I am a locksmith for a correctional institution, and have run into several problems with outside Folger Adams and Southern Steel locks. In the winter, with snow and condensation, the locks freeze up. Now you can't do anything about Mother Nature, but you can do two things to stop the locks from maintaining the moisture that freezes.

First, remove the lock and drill two 1/4" holes in the bottom, one on each side. Even if the lock does freeze, when you heat it, the water will drain out preventing re-freezing. Next, I use strips of heavy rubber welders curtain to shield the lock from the elements. This material is very pliable in cold weather and has lasted for five years so far. I use a strip of metal across the top, secured with pop rivets to hold the flap over the key access hole. Using this heavy material, the wind doesn't blow

it up.

Dave Corzine
Missouri

This tip concerns making a dummy lock cylinder for a Schlage double cylinder deadbolt. The customer did not want key access from the outside, but already had double cylinder deadbolts installed in the doors, and wanted to maintain key control from the inside. I left the lock cylinders completely loaded with top and bottom pins and brazed the keyway shut on the outside cylinders. The lock plugs were filed smooth to resemble the brushed brass finish normally found on this type of lock.

The cylinders were installed into the locks, and the locks installed on the doors, using both tailpieces, just as if the outside cylinder was still active. In the future, if the lock has to be set back to regular use, it will be a simple job to replace the dummy cylinders with new cylinder. By getting the outside cylinder filed smooth, the locks looked like a factory item, and the customer



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was very pleased. On the 626 finish, silver solder could be used instead of brass to fill the keyway.

David Mercer
New Mexico

Editor's Note: Consult your local fire ordinances. It has been my experience that double cylinder deadbolts are not allowed on exterior doors in any commercial building. All doors are considered exits and must be accessible from the inside for egress (exit) without the use of a key. Some ordinances prohibit deadbolts altogether and allow only emergency exit devices or single

motion locks. (i.e. latch and deadbolt retract simultaneously with rotation of the knob only.) Check your liability. If the customer demands something that you know is not to code, have him sign your invoice with a note stating that you have explained the situation and that he is knowledgeable of the problem.

Why not just install the deadbolt without the actuator in the outside cylinder?

This tip refers to the Belsaw model 200 key machine. When duplicating or cutting a key to code, any safe deposit key or similar key that requires a throat cut close to the bow of the blank will hit the guide block at point "A." (See illustration 4.) This problem requires that

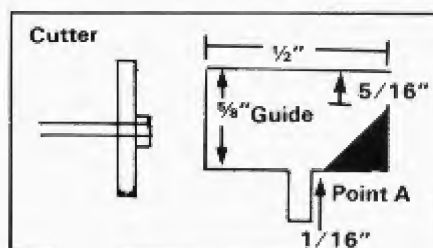


Illustration 4

you either readjust your micrometer, or hand file the throat cut. Referring back to the illustration, all you have to do to correct this is to grind or file the key guide as shown by the darkened area of the illustration at point "A." I have used my key machine this way for five years, and it has saved me a lot of time and inconvenience. I hope this will help those who use this type of key machine.

Mike Nelson
Pennsylvania

My tip is for a template to mortise the jamb of the door to accept the plastic latch box shield supplied by many deadbolt manufacturers. First install the deadbolt and locate the strike plate so the deadbolt works freely. Remove the strike plate and screw the template (see illustration 5) in its place.

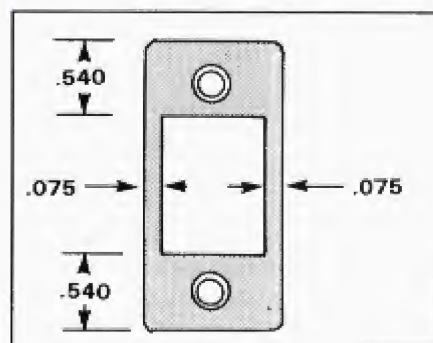


Illustration 5

Chisel or use a dremel tool to open the mortise to accept the plastic latch box protector, using the template to guide you as to the size of the hole. Remove the template and install the plastic protector and new strike plate. The template is easy to make, simply file a spare strike plate to the dimensions shown, or so the plastic insert will



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fit in it.

Clifton Day
Maine

In regards to Mr. DeRocilis' tip in the March '88 issue, I thought it was a good and practical tip. It brought to mind a drill sharpening gauge I have been using for some time now. (See

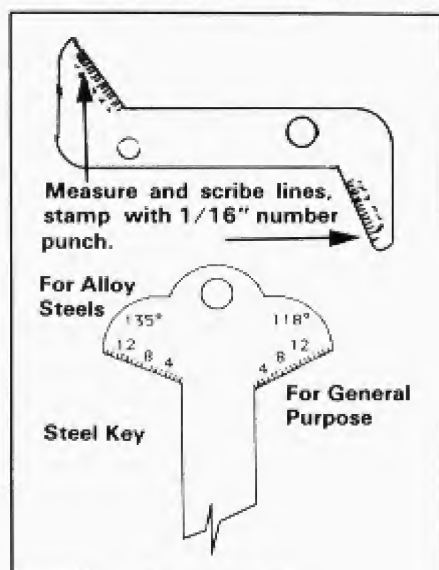


Illustration 6

illustration 6.) The gauge is made of 1/32" thick stainless steel, but the material can be thicker. The scales are used to measure the lip length of the drill bit, an important part of sharpening the drill. Note on the illustration, after scribing and stamping the numbers deep enough, apply a coat of durable ink. After the ink dries, sand the areas to make the markings more visible.

Arnold Heideman
Illinois

Editor's Note: These last couple of tips are basic ones, but still are of interest. Be sure to send me your tips!

This tip is for a tool to remove the lock cylinder from a Kwikset lock. It is made from a 6" piece of spring steel. The steel is bent as shown in illustration seven. To use the tool, remove the spindle and squeeze the tool just enough to enter the hole behind the lock cylinder. Push in slowly until the tool contacts the cylinder retaining clips. Then push in hard and turn the

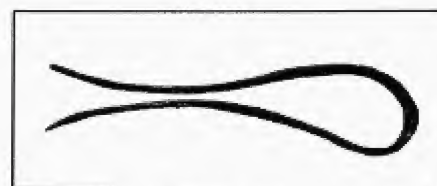


Illustration 7

tool to the right. The cylinder pops right out. It works great.

Bob Davison
South Dakota

This tip concerns an easy method of bypassing the push lock on some file cabinets. The tool is made from .090" spring wire, available at most hobby

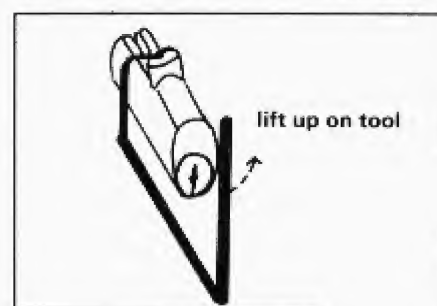


Illustration 8

Continued on page 83



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News-makers

New Products and Industry News

Security Door Controls' Digital Access Control

Developed and manufactured by Security Door Controls, the 900 series Digital Entry has been developed for commercial and industrial use as a cost-effective alternative to other digital access controls on the market.

The Digital Entry provides features typically found on more expensive digital access controls. Standard features include keyboard programmable access codes, 5 second delay on relock, on-off latching, LED status, remote control tie-in, tamper lockout, code memory backup, and 12-24V AC/DC operation.



Independent Hardware Opens Western Branch

Independent Hardware Inc. announces the opening of a subsidiary, Independent Hardware West, Inc. at 293 East Redondo Beach Boulevard in Gardena, CA. The subsidiary is in a very convenient South Bay area location. This location is 10-15 minutes from downtown Los Angeles, L A X, and the Los Angeles Harbor.

Independent Hardware West, Inc. will feature a spacious showroom, ample parking and dock high loading for two trucks. Opening of this subsidiary will allow better service in this area. By late spring, this location will be fully operational.

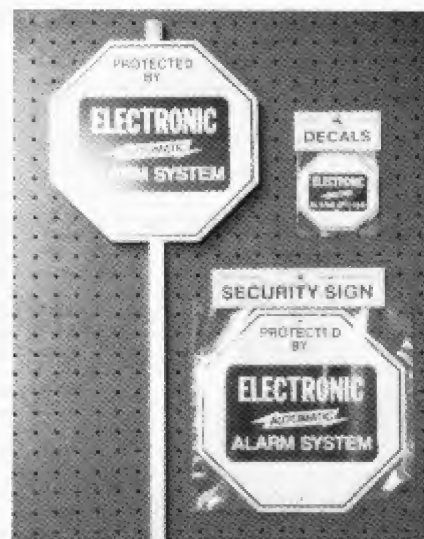
Jefferey E. Stein, currently Operations Manager at the Philadelphia location, will be in charge at the Gardena location. Jeff is a 1979 graduate of the Wharton School of Finance and Commerce of the University of Pennsylvania.

Jeff and the rest of the staff at Independent Hardware West, Inc. look forward to serving the locksmith and door hardware trades in the greater Los Angeles metropolitan area, as well as the western United States.

Maxwell/Signwell Generic Security Signs

"Do-it-yourself" alarm installers use the security signs and decals produced by Maxwell/Signwell. The signs are also used by retailers who install security systems.

An initial starter package includes six high impact plastic electronic warning gate signs, 12 yard signs, each sign is pre-mounted to a 36" u-channel aluminum stake, and comes with 100 matching vinyl decals. Signs and decals are printed with exterior inks for weather resistance.



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Bell Detection Mirrors Provide Area Security

Bell Detection Mirrors, a Division of Bell Glass & Mirror Co. manufactures a complete line of steel-backed, U.S. and foreign-patented Bell Safety Detection Mirrors that can be used to protect industrial establishments, public buildings, government installations, schools, hospitals, and also retail operations, where the problems of accidents, security and pilferage exist. The mirrors are available in round and rectangular convex glass flat glass and



metal. For areas where glass mirrors might prove hazardous, shatterproof glass and plexiglass mirrors are also available. All models also have heavy duty, all-steel swivel assembly and installation hardware.

Available in convex and flat glass, in round and rectangular sizes, and in laminated safety glass and unbreakable metal, the Bell Detection Mirror is made for permanent installation.

Circle 324 on Rapid Reply

Updated Catalog From Hardware Suppliers

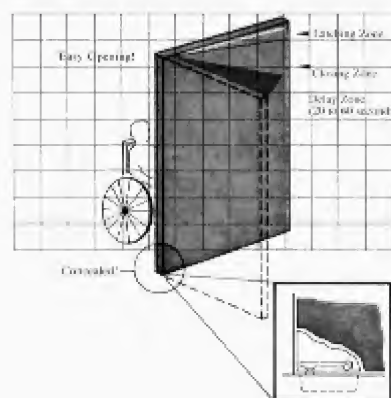
Hardware Suppliers of America, Inc. is announcing the arrival of an '88 Catalog with 28 pages fully illustrating their complete stocking lines of Schlage, Von Duprin, Dexter, Baldwin, Rixson-Firemark, Norton, Simplex, and McKinney/Hager hinges.

Also, HSI has added Ives and Medeco products to the shelves offering the locksmith the availability and service needed for these lines.

A free catalog is available to members of the trade.

Delayed Action Closer From Dor-O-Matic

Meeting handicap entrance requirements is easier now with Dor-o-Matic's Delayed Action series door closers which provide a delay zone allowing time for entry before the door begins to close. The Dor-o-Matic unit is unique in that it still offers adjustment over all speeds of the closer.



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Von Duprin Introduces Two-Door ScrambleLock

Von Duprin, Inc. is now marketing a smaller version of the ScrambleLock programmable access control system, designed for installations controlling one or two doors. As with the previously introduced Model 8 ScrambleLock, the new Model 2 features a patented microprocessor-controlled keypad that effectively prevents access



codes from being copied, stolen or compromised by combining a unique random pattern display with a restricted (+4°) viewing angle.

The new model is well-suited for computer rooms or other secure areas within large buildings, as well as for small businesses and similar locations where a simple and compact access control system is needed. The Model 2 system has all the features of the larger Model 8 in a lower cost system tailored for use with fewer openings, yet can accommodate up to 1,000 different user codes.

Circle 373 on Rapid Reply

Ilco Unican Buys Locksmith Ledger

In a March letter to Ilco-Unican shareholders, chairman Aaron Fish announced an agreement to purchase *Locksmith Ledger* magazine and the Reed Code Division. The purchase took place on March 10, 1988. Mr. Fish's letter notes that the purchase "...should open for the Unican group, enormous possibilities for commercial development in these countries where locksmithing is still an ironmongery rather than a technically developed

trade."

Other companies purchased by Ilco Unican include Taylor Lock Co., Dominion Lock Co., Simplex Corp., and Orion of Italy. *Locksmith Ledger* has now been added to this stable of companies under the direct leadership of Aaron Fish of Ilco Unican.

Video Visions Offers Car Opening Tape

Video Visions has produced a videotape that shows how to open and fit keys for GM's L cars, the Beretta and Corsica. GM has changed most of the locks on these cars and there are new parts and procedures involved. GM has also introduced this steering column into their new W cars; the Buick Regal, Pontiac Grand Prix, Oldsmobile Cutlass and Buick Reatta.

The tape uses close-up photography to show how to open a locked Beretta in seconds, as well as the methods involved in tearing down the steering column and removing the ignition locks in both the tilt-wheel and standard wheel models.

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Crimestopper Security Products

"Installation of these devices is not as difficult as one might think. A review of the installation procedure will show that you should be able to install auto security."

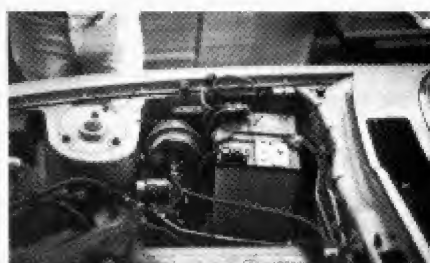
A family's security should not extend just to the perimeter of the home. Securing the family car should also be part of an overall security program. Last year over 1.2 million cars were stolen in the U.S. In general, violent crime went down while theft of property went up. A shop which specializes in sales and installation of home (or business) security devices should also be involved, as a logical extension of the same business, with sales and installation of vehicle security products.

Crimestopper Security Products, Inc., 1770 South Tapo Street, Simi Valley, CA 93063, is a leading manufacturer of state-of-the-art auto security systems, offering a wide range of alarms and accessories including the popular radio frequency remotes.

Installation of these devices is not as difficult as one might think. A review of the installation procedure for the Crimestopper CS8706 system will show that persons familiar with security systems in general should have the ability to install auto security products as well.

In The Engine Compartment:

Many experienced professional installers prefer to begin the installation at the front of the car and work



The pin switch is used to protect the engine compartment.

their way back to the trunk. The components that would be placed in the engine compartment include the siren, pin switch, main fuse, and in the case of the CS8706, the sensor. It is recommended to disconnect the negative battery terminal (making sure all electrical components are turned off first) before you begin the installation. This way, no wires touched by accident will cause a short, and the battery will not be discharged by the dome light if a door is left open for an extended period.

Be creative in determining the best location for the siren. It should be placed where its sound will radiate as loudly as possible, yet at the same time not be accessible to a thief crawling under the car.

Once you know where you want to put the siren, remove its bracket and use it as a guide to mark the mounting holes. Before drilling anywhere in the

vehicle, always be sure to check the other side of the panel you're drilling for wiring looms or other obstructions. Drill $\frac{1}{8}$ " holes for the bracket. The siren's 12 volt lead will be connected to the alarm, while its ground wire can be attached to its own bracket or any good, solid ground. (It is recommended to keep the ground wire as short as possible to reduce possible RF interference.)

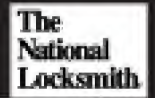
The next component to consider is the pin switch. One good location for the switch is on a right angle bracket attached to the firewall. Or, again using a right angle bracket, on the side of the bay near the firewall. If not using a bracket, be sure to avoid placing the switch in a water channel. Drill a $\frac{9}{32}$ " hole, install the pin switch, and tighten using a $\frac{7}{16}$ " wrench. Adjust the switch so that it will be depressed $\frac{1}{4}$ " when the hood is closed. Be sure the switch's location is a ground source, or run a wire from the switch to convenient ground.

Next is the fuse. Since the car battery is the power source, you'll want to place the fuse close to the battery. The alarm's main power wire should be connected directly to the positive battery terminal using a ring connector. This way, even if a thief manages to cut the main battery cable the alarm's

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power is maintained. It is equally important to ground the battery to the fender. It is actually easier for a thief to reach and cut the main ground than the main 12 volt lead. If he can reach either the ground or the 12 volt cable he can render the battery (and the alarm) inoperative, unless you have taken the proper steps.

Now you should have all the wires from the engine compartment (main 12 volts and ground, pin switch, and siren positive) together and ready to pull through the firewall. If you have planned your installation before beginning the work, your choice for where to run the wires through the firewall should already be made. Choose a place to go through the firewall that is convenient to the location of the alarm's main module under the dash.

If you plan to mount the alarm's "brain" on the driver's side, for example, search for a rubber plug on the firewall on that side of the vehicle. Pull that plug, pull the wires through (take care not to damage or stretch any factory wires), and replace the plug. If you can't find a plug you can use, then you must drill a small hole in the firewall to pass the wires through. If you drill your own hole, be sure to install a rubber

grommet to prevent the wires from chafing.

Inside The Passenger Compartment:

Now you are ready to begin working inside the vehicle. The next component for installation is the command module, or "brain," which should be mounted up under the dash. The brain may be placed either on the passenger side or the driver's side, but Crime-stopper installers feel the driver's side is best, as it allows easier access to ignition wiring at the steering column.

When installing the brain, be sure to leave yourself some slack in the harness, and loom the harness' wires with cable ties. This will provide easier accessibility to the brain should the alarm ever require service. Use cable ties to secure the module to existing brackets in the car so the unit won't vibrate. A special consideration of remote control alarms is RF. The main brain is also a radio receiver, and should be mounted as high as possible and clear of contact with metal. Often, suspending the brain in "mid-air" with cable ties produces the best results.

Starter Kill:

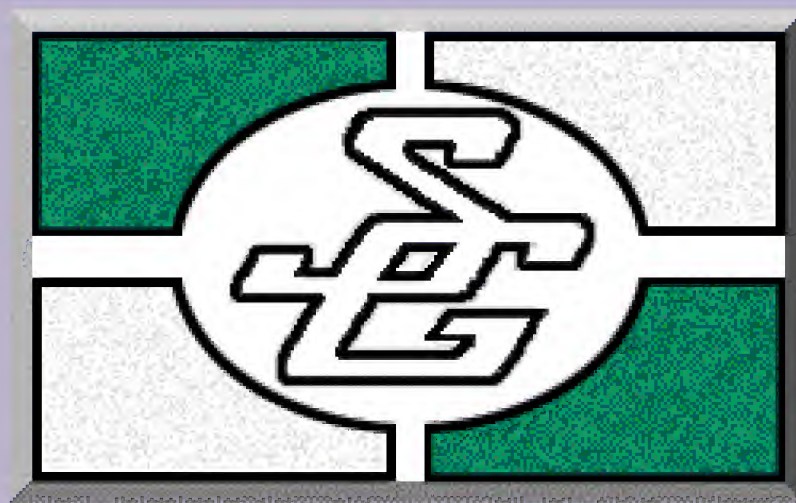
Now is time for the starter kill component. The steering column is a good

place to locate the wires you will need.

First, find a 12 volt source which will have voltage in both the *on* and *start* positions of the ignition key. To this wire, splice in the #86 terminal of the alarm's supplied starter kill relay (Bosch SPDT). Next, cut the lead that leads from the ignition switch to the starter solenoid. (This wire should light a test light *only when cranking*.) Crimp or solder the two cut ends to the heavy-duty connector wires from the #97A and #30 terminals of the starter kill relay. Last, connect the wire from the #85 terminal of the relay to the alarm's starter kill output *brown/white* wire of the CS8706.

Sensor:

The next component to consider is the sensor. Although the CS97 sensor supplied with the CS8706 is designed to be mounted in the engine compartment, many sensors are not, so this is where it fails in the discussion. Typically, the sensor is the first line of defense in a vehicle security system. Unfortunately, the old-style motion sensor has given the sensor in general a bad reputation. So in mounting the sensor, you must take extra care to be



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sure the sensitivity is adequate but not too high, to avoid false triggers.

For its versatility, most installers prefer to use a shock sensor when budget permits only one sensor in the vehicle. Crimestopper installers recommend you mount the shock sensor on a strap or section of plumber's tape, rather than directly to a surface such as the firewall. A metal strap helps to boost the sensitivity of the sensor, as well as improving the uniformity of the sensitivity throughout the vehicle.

The sensor supplied with the CS8706 is an exception to the rules, as it is designed to be mounted directly to the engine side of the firewall. The CS97 is a combination shock/motion sensor, operating on the electromagnetic principle. A magnet is suspended in a voltage field, and any vibration of the magnet, whether from motion or shock, will cause a change in voltage and trigger the sensor.

To mount a CS97, remove the unit from its swivel bracket, then mount the bracket on the firewall. Then attach the sensor to the bracket, swivel until it is (approximately) vertical, and tighten. Then it should be adjusted just like any other sensor.

It is important to test a sensor by

producing the right kind of vibration for that sensor. A glass sensor listens for the sound of a breaking window, best simulated by banging a bunch of keys on a window. For a motion detector, push on the bumper to rock the car. For shock, slap the outside of the car with an open hand. Do not pound on windows to test for shock they break all too easily. The key to getting a sensor dialed in properly is to test at several different locations. No matter where or in what direction you hit the vehicle, the shock sensor should sense the impact. But motion (such as rocking the bumper) should not trigger it.

Power Door Locks

Now let's talk about power door locks. This has become the most sought-after upscale convenience for auto security systems. Also called keyless entry, the doors will automatically lock when arming and unlock when disarming. But the vehicle must be equipped with power door locks for the alarm to interface with. (Unless you plan to invest the time to install a power door lock actuator in each door.)

So, the first question is, does the vehicle have power door locks? If it does, you will probably find a pair of buttons

or a rocker switch to lock and unlock the doors. If the door locks are power operated, locate the two wires from the original lock/unlock switch that operates the factory door, lock solenoids. Using a test light or meter, determine whether these lines switch 12 volts or ground to the solenoids, and observe which lines lock and unlock the doors. You should use a pair of Bosch SPDT relays to operate power locks to isolate and protect the vehicle's wiring.

Wiring in the lock relay first, connect the lock output *gray/red* wire) from the alarm brain to terminal #85 of the relay. Terminal #86 is connected to a constant 12 volt source. Terminal #87 goes to the factory wire which locks the doors. If the factory wire shows 12 volts when it locks the doors, connect terminal #30 to 12 volts. If the factory wire shows ground when it locks the doors, connect terminal #30 to ground.

The CS8706 offers one unique feature that you have probably never seen, called Key Sensing Circuit. It is primarily used when also connecting the power door lock feature, as its main function is to prevent the alarm from locking the doors if the key is not removed from the ignition. To use the key sensing, find the wire from the



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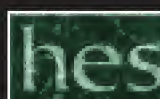
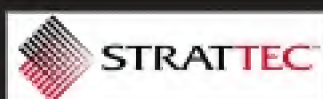
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steering column to the warning buzzer.

The easiest way to do this is to turn the ignition *on*, then *off*, then open the door (without removing the key) and listen for the buzzer. Every car sold in the U.S. since about 1973 is equipped with a door buzzer. Once you have found the buzzer, cut the wire from it to the steering column and connect the key sensing wire in its place. A side benefit of all this is eliminating that annoying buzzer, which is no longer needed because the alarm has taken over its function.

Flashing Lights:

Many systems today offer a built-in flashing output which is designed to flash the vehicle's lights when the alarm is triggered. The CS8706's flashing output also flashes the lights at the same time as the siren "chirps," as an additional confirmation that the alarm is armed or disarmed. To use this feature requires another Bosch relay. The #85 terminal of the relay is connected to the alarm's flashing output (*tan* wire of the CS8706). The #86 and #87 terminals connect to a constant 12 volt source. The #30 terminal is the relay's output, and is connected to the vehicle's side marker or parking lights.

Door Switches:

The CS8706 is a passive arming remote disarming alarm. This means the alarm will arm all by itself, although the remote will also arm the system. The CS8706 is also a "last door arming" alarm, which means that the system will not arm automatically until it senses the door opening, then closing. To utilize this feature you must connect the alarm's door wire (*green* if negative, *yellow* if positive) to the vehicle's door switch.

Rarely, a vehicle will not have door switches. In those cases, use the same drilling measurements as in mounting a hood switch, installing the switch in the doorjamb. But in most cases the vehicle will be equipped with door switches, whose primary function is turning on the dome light. If you tie into one (the front left door, for example), that switch will also show voltage (12 volts or ground) when any other door in the car is opened. Simply tap into that wire, and all the doors will automatically be connected to the alarm system.

Trunk Switch:

No install is complete until the trunk has been protected. The pin switch is most commonly used to accomplish this. The switch should be mounted so

that it strikes the trunk's shelf at a 90 degree angle.

The shelf should be sturdy enough to cause the switch to depress $\frac{1}{4}$ " when the trunk is closed.

Installing a switch in a trunk can be time consuming, as it is sometimes required to remove moldings, and occasionally even the back seat, in order to run the wire. A less time consuming method of triggering the trunk (if the vehicle is equipped with a trunk light) is Crimestopper's CS99 adjustable voltage sensor. This device can be wired to the fuse box on the trunk light circuit, and when it detects the voltage drop caused by the trunk being opened, it will trigger the alarm.

Troubleshooting The Installation:

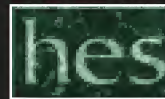
After the installation is complete, but before buttoning up all the panels, retrace your steps once to be sure all components are installed properly and operate as they should. A hassle-free way to review your work is Crimestopper's CIA51 installation test analyzer. Plugged in in place of the alarm brain, the device checks each one of your connections throughout the vehicle for 12 volts, ground, and continuity. ■



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Auto Security is a booming aspect of the larger security industry. There are plenty of profits available to those with the knowledge and the right products. Take advantage of this special section to request information on any of the products shown here. Many locksmiths have already moved into the area of vehicle security. The manufacturers in this arena will be happy to help you get started.

Aero Lock's 1988 Catalog

Aero Lock of Memphis is making available to the locksmith trade their new 1988 catalog which features: Ford 10-wafer door tryout keys, Nissan-Subaru 8-wafer tryout keys and Hyundai tryout keys.

The catalog also highlights Aero's line of 35 tryout key sets for domestic and foreign autos and cycles, over 30 cut key sets for desk, file, utility and luggage, as well as 120 depth key sets for knob, auto, cycle, desk, file and padlock.



Circle 387 on Rapid Reply

All-Lock's New Emergency Key

CreditCard Keys™ are a new emergency key system that lasts the life of your customer's car. Made of a special Dupont resin, Delrin® II, the CreditCard key is lightweight, durable and easy to use. They cut on any standard key machine and are available for most domestic and import cars.



Circle 386 on Rapid Reply

Autosafe Elec. Vehicle Security

The American-made model 2211-System 3 auto alarm from Autosafe Electronics will arm itself even if you forget to.

This system offers comprehensive instant perimeter protection plus impact detector for glass body panels, tires and wheels. Flashing LEDs indicate alarm status.

The system 3 comes complete with 2211 A control, 6515 remote control with two transmitters and more.

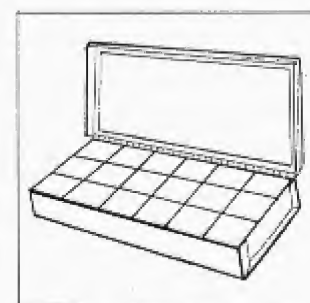


Circle 388 on Rapid Reply

Auto-Security Keying Kits

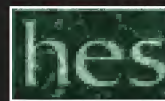
Auto-Security Products announces four new keying kits for imported vehicles to be available soon.

The new kits are as follows: A-19-104 for 1988 Honda locks using HD88/HD89 (X172/X173) key blanks; A-21-103 for Mercedes-Benz locks using 4-track keys; A-26-101 for Porsche 911 series cars using A81L/A81M/X32 keys and for Porsche X928 using Silca HU42P keys; and A-30-106 for 1988 Toyota Corolla and Daihatsu Charade using TR40 (X174) keys.



Circle 385 on Rapid Reply

May 29



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Briggs & Stratton's Professional Choice

The locksmith's "Professionals Choice" catalog has been fully revised for 1988. The 72 page quick reference and application guide illustrates some 600 part numbers in a new format.

Finding part numbers for commonly serviced automotive locks will be greatly improved. Companion parts, tumblers, kits, key blanks, lock service packages and an interchangeable guide are cataloged by vehicle manufacturer and year.



Clifford Offers Remote Security

A single touch of the keychain remote control of the Clifford Electronics CliffAlarm DLX car alarm simultaneously arms the alarm and locks all car doors. A second touch disarms the alarm and unlocks all doors, permitting immediate entry.

Ze'ev Drori, president of Clifford Electronics, said "It's a very practical feature for anyone who has ever had to fumble with keys in the dark or bad weather."



Code-Alarm "XT" Security System

Code-Alarm recently introduced a new, remote auto security system featuring an "Intelligent Receiver" capable of learning manipulation codes, electronically. This eliminates manual coding additional transmitters to replace those that have been accidentally lost or damaged. The Code-Alarm dealer therefore needs to carry far fewer replacement transmitters in inventory to serve his customers.



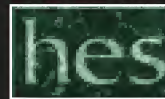
Crimestoppers' Pager/Alarm

Crimestopper Security Products, Inc., has introduced the HP-8850PR Commander™, the first FM pager vehicle alarm system.

Like any other pager on the market, the Pager/-Remote includes a handheld set which emits a tone if an intrusion is attempted on the vehicle it protects.

But, unlike other pager systems, this unit includes all the features found on the Crimestopper HP-8710 Stiletto™ Remote Control Alarm System.

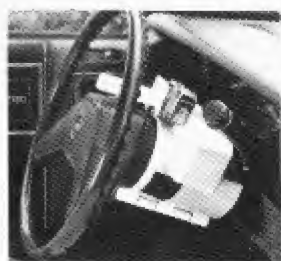




The Lok-Itt Co.'s Steering Lock

The Lok-Itt Company now offers their heavy duty steering wheel lock, which, when securely fastened to the steering wheel column, helps prevent the steering wheel from turning, thus helping to foil would-be car thieves.

Made of steel, with a protective and decorative vinyl coating, this device, which is easy to install, fits snugly, and allows access to various controlling levers on the steering column, but keeps the steering wheel stationary.

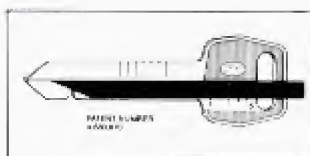


Circle 398 on Rapid Reply

H.E. Mitchell's Decoding Tool

Eez Reader from H.E. Mitchell Co. is a new automotive decoding tool that catches and holds each wafer in its "locked" position and quickly transfers or "reads" that position to a series of marks on the head of the tool. There on the head of the tool you quickly read depth numbers.

It eliminates the danger of damaging wafers by trying to impression a cylinder that you can decode more quickly. Ford wafer door and Toyota readers are presently available with others coming soon.



Circle 400 on Rapid Reply

R & S Accessory Protects GM & Jeep

The Steadfast Security system is an armored collar which is fitted permanently around the steering column and key mechanism, and in conjunction with the steering lock, protects the prime area of theft attack. Once installed, Steadfast provides continuous protection without a second key or secret codes. Steadfast is armed the moment the key is removed from the ignition. Other anti-theft devices frequently fail because they are never activated.



Circle 367 on Rapid Reply

Seco-Larm Offers A Wide Line

Seco-Larm U.S.A., Inc. offers a wide variety of vehicle security systems and accessories, with alarms to meet any budget, along with technical and sales support.

The Seco-Larm line is divided in the two series: the modular Enforcers, and the single-piece. Both alarms offer crystal-controlled RF remote control with 100-foot ranges, emergency panic protection, and a 2-step disarm to eliminate accidental disarming.



Circle 368 on Rapid Reply



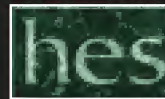
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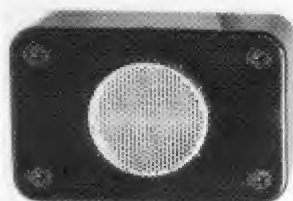
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Intercom Systems From Talk-A-Phone

An area that is particularly suited to the locksmith and that has contributed to increasing his business, is intercom.

Talk-A-Phone Co., introduces their Ultra-Sonic Vehicle Detector. The detector does not require a loop wire installed in the ground, (eliminating the need to cut into the concrete pad), and makes this communication system especially suited for retrofits, as well as new construction.



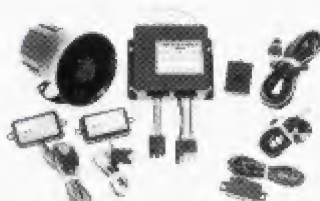
Circle 370 on Rapid Reply

Micro Processor From Thug Bug

Thug Bug of Connecticut is proud to announce their new American-made Remote 4000.

This micro processor design has the following features: door lock and unlock relays, starter interrupt and light flashing circuits. All relays are outboard to provide flexibility in choosing the features desired.

The 4000 kit comes with an emergency override switch, valet with LED, shock sensor, and electronic siren. The remote carries a lifetime warranty.



Circle 369 on Rapid Reply

Valley Forge Adds Honda Locks

Valley Forge Products has added the locks for Honda vehicles to its line of replacement locks for foreign cars.

Included in the line now are locks for Nissan, Toyota, Hyundai, and Honda.

There are eleven numbers covering the most popular Honda models of the last twelve years. They are exact replacements for the original equipment.



Circle 371 on Rapid Reply

Vehicle Security's Keypad Transmitter

Vehicle Security Electronics, Inc. announces their latest development: the new Quantum™ Model VS-8650T 12-button keypad-transmitter. It is extremely thin and is the result of combining the technologies of "SMD" (Surface Mount Device) and conductive rubber in one product.

Surface mount devices are subminiature components which protrude only slightly above the surface of the circuit board resulting in products which are extremely small and flat.

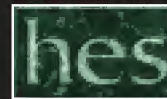


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Audiovox Offers Access System

A remote access system which allows car owners to lock and unlock car doors and trunks as well as activate or deactivate their car security system from up to 75 feet away has been introduced by Audiovox Corporation.

The Audiovox PRO-9146 remote access system is the latest addition to the Audiovox Pursuit Series of custom security components. It is marketed exclusively through new car dealers under the Protector label.



Circle 359 on Rapid Reply

BFM's Ranger Remote Security

BFM Importers of New York announce that the new remotes by Ranger are among the first anti-scanning R.F. receivers that are currently available.

Ranger system model 758 is housed in a smaller die cast aluminum housing and features two piezo sounding devices generating a powerful 124 decibels, at three feet. Also included are built-in, pre-wired receiver, battery backup, and power door-lock interface and many more features.

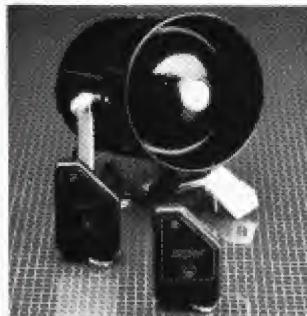


Circle 360 on Rapid Reply

Serpico's GR-2 Two-Wire System

The Serpico GR-2 is a two-wire vehicle security system with an installation time of twenty minutes. The units are supplied with two remote anti-scan transmitters which eliminates any drilling for keyholes into the body of the vehicle.

The units offer an added security of a "panic" feature which enables the owner to set off his alarm at a safe distance from, or in his vehicle if it looks like he might be in a life-threatening situation.

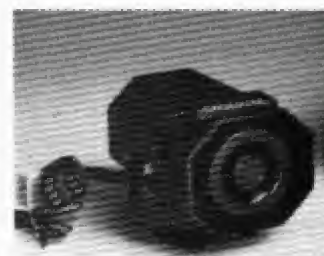


Circle 361 on Rapid Reply

Dalme Inc. Offers Sicuro

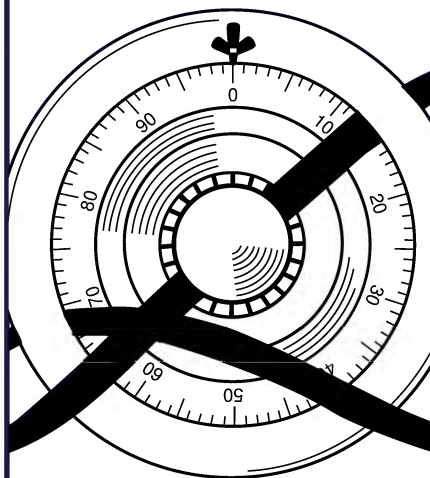
Sicuro is the name of Dalme, Inc.'s auto security system.

It features heat-resistant, high-impact materials which allow the system to be mounted under the hood. It also features triple-pulse signals making them almost unscannable, quartz-controlled ultrasonic sensors, even effective after a window has been broken and a hood lock that prevents entry from outside or inside the vehicle.



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The Mitsubishi Precis

"When we arrived at the car we found that it was about the same as the Hyundai in relation to the locks. The door handles were even mounted the same."



Send your car opening questions to: Shirl Schamp, The National Locksmith, 698 Bonded Parkway, Streamwood, IL 60107.

by Shirl Schamp

The Precis is an economy car from Mitsubishi popular on the West Coast. Not much has been written about it, so here goes. When we arrived at the car, we found that it was the same as the Hyundai in relation to the locks. The door handles were even mounted the same. I believe that the doors them-

selves probably came off the same assembly line. So as I proceed and refer to the Hyundai, keep in mind that what you learn about the Hyundai should apply to the Precis; even the key blank is the same.

The Hyundai is imported from South Korea, the code series 1986-88 is X0001-1000, the primary key blank is: Ilco/Curtis HY2; Taylor X160; and Silca HYN2R. Baxter depth key set is FGK 262, Micro card is: XF201, depths and spacings is:

Depths	Spacing
(1) .276/7.2mm	(1) .098/2.5mm
(2) .262/6.7mm	(2) .197/5.0mm
(3) .244/6.2mm	(3) .295/7.5mm

(4) .227/5.7mm	(4) .394/10.0mm
	(5) .492/12.5mm
	(6) .591/15.0mm
	(7) .689/17.5mm
	(8) .768/19.5mm

The codes are on none of the locks. To my knowledge the only place they can be found is on the tag that comes attached to the keys when the car is new. Of course this means that unless the customer has retained the code on his own, or the customer happens to be either a reposessor or dealer he probably will not have the tag information.

So you know what to expect before actually getting into the removal and replacement procedures, I'll give you a

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few other facts that you can make work for you: Though the key is a double sided key, the lock is a single sided lock. The key is a convenience key; it has the same cuts on both sides only for the ease of information, but inside the lock *all* the wafers come in from one side. There are 8 wafers that comprise the locking. Going from #8 to #1 there are 3 separate groups, 8 765 4321. Each is required in the specific functions of the system. The functions related to each are: #8 is found only in the ignition lock and is always a #2 depth, pre-cut into the blank. 765 are found in all the locks on the car, at least somewhere with the perimeters of 765 there is a requirement. 4321 are found in all the locks except the glove and gas cover.

Now let's analyze what this means to

the locksmith. Do we rekey? Right! If we were to change only the #8, we would have changed the ignition without changing the rest of the car and still have a key that works all the way around. I'm not sure that this is a good idea. In theory it's great, but I tend to think since the #8 is always a #2 depth and is pre-cut onto the blank that there's probably an engineering reason for it. But if you do elect to make this change, the only extreme that would be great enough not to possibly cross would be to put in a #4 depth.

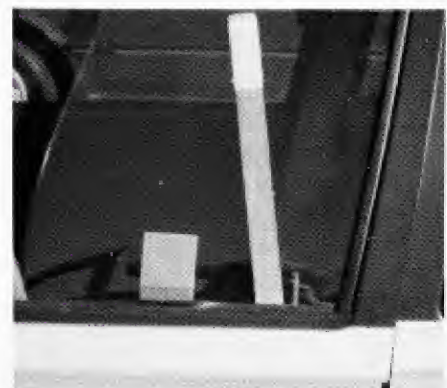
If we were to change the next group, 765, it is necessary to change (rekey) every lock in the car. This might be preferable to some customers.

If we were to change this group, 4321, we can accommodate the low

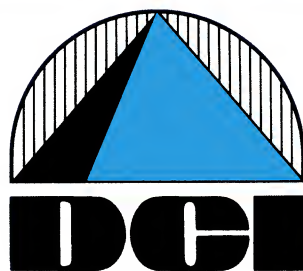
budget customer without either walking away or sacrificing our price structure. We offer changing the ignition, doors, and trunk saving them the cost of changing the glove or gas cover and still have their key work all the way around. This is usually the preferred route.

The only other thing that I feel is important when rekeying a wafer lock with only four possible depths is to beware of the extreme tolerances built into the wafer lock. Watch you Maximum Change Level. The great tolerances make reading a lock visually so workable. If you are anywhere close, it will generally turn. As an example, if the cut should be a #2 depth and you cut it at #1 or #3 it will work, granted probably not properly, but it will work. So make sure your M.C.L. is an extreme. Example: change 1 to 4 or 4 to a 1 is best, but be sure it's no less than a 1 to a 3, 3 to a 1, 2 to a 4, or 4 to a 2. Never make your M.C.L. the next step up or down.

You arrive to service a 1988 Hyundai Excel. The first thing you see is that the car is locked. My suggested method for opening is to Super "J" the button rod itself. This is based on the observation of a button sitting in the window on the ledge, which tells me that it is vertical. Insert a wedge between the window and the door. Then, bowing inward, insert Super "J." (This tool is similar to a Slim Jim with a 3" bend on the end.) The tool will bind on the rod itself. Note: If the window is lipped, first insert a straight Slim Jim. Then walk the Super "J" down the straight Slim Jim. Then remove the straight Slim Jim and proceed. Slide the Super "J" over against the button rod and pull up, the Super "J" will bind on the rod lifting the button as its raised. Photograph one shows the correct angle and position of the Super "J," and photograph two shows how it catches and binds on the rod.



1. Correct position of the Super "J."



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2. The Super "J" catches and binds on the rod.

I realize some of you prefer to impression a key. That's fine if you've mastered the art, but if you are not real good at impressing wafers yet, back off. Wafers, especially in foreign cars, have a tendency to bend fairly easily. Laboring the point for a moment, if you look at a group of locksmith's impressing you'll see two noticeably different types or methods of impressing. One is sort of a roll method and the other, a rap method. If you fit into category one and you want to impression, go ahead. If you fit into category two, back off real fast! In case you don't totally understand what I'm referring to when I say the rap method, if you put the key blank into the lock, apply turning pressure, and then tap the key up and down with something to obtain a mark, you are rapping!

The other way to make a key is to disassemble a lock. First we approach the door. After removing the panel on the door, you'll see the back of the lock which is mounted into the door handle. There is one piece of linkage connected to the pawl of the lock; disconnect this linkage. For a long time we were removing the two bolts (7mm) that hold the handle in. (See photograph 3.)



3. Bolts which hold the handle in.

Later we became aware that after you disconnect the linkage, you can wedge a small screwdriver in under the keeper (round spring retainer) and by twisting it a little, you can expand the ring and release the cylinder. The handle mount acts as the housing for the lock. The lock removes out of the rear of the housing.

As you can see in the upper left hand corner of photograph four, the door



4. Read door lock from top of plug.

lock can simply be read from the top of the plug after inserting a blank. Of course if you are rekeying, then you must remove the pawl, retract spring,

and pop the chrome faceplate off. The faceplate shouldn't be damaged if you are careful and can be reused.

The trunk lock is held in with a "C" clip the same as what is common to domestic door locks. Actually all you would have to do is disconnect the linkage and remove the lock, but depending on your agility and available tools you might want to remove the trunk release unit mounted over the lock. I think this requires a 7mm wrench. The lock comes apart thus, (follow this in photograph 4); remove the small truearc from the post protruding from rear. Remove the pawl, then the large truearc.

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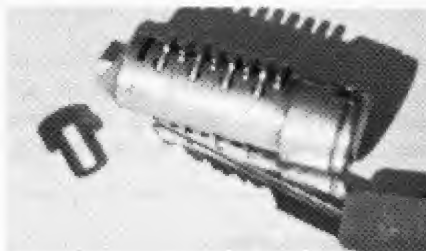
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Remove the outer housing (just below the door lock), and the retract spring. Now concentrate on the lower right hand corner of photograph four and you'll see a keeper. It's just below the post on the rear of the lock. On top of the lock you can see the tip of my awl pointing; the keeper has been removed from there. After removing the keeper the cylinder will slide out the front of the lock.

The ignition lock is one that locksmiths dream of taking apart, but there is a definite trick to putting it back together. As shown in photograph five, we've inserted an extractor. Biting the bottom of the keyway, we're using a pulling tension. In the other hand we've inserted a hook. The hook is inserted all the way to the rear of the lock, pointed in the direction that would allow you to lift a wafer. You can lift the retainer as it is complete circle (close across the bottom). See the retainer in photograph six; it is laying out at the rear of the cylinder. Most retainers are horseshoe shaped to avoid us or anyone doing this. Back to photograph five. As you lift, the cylinder will release and slide out just a little. Now it's a matter of just raking the wafers as



5. The ignition lock is removed.



6. Notice retainer at rear of cylinder.



7. The inside of the ignition housing.

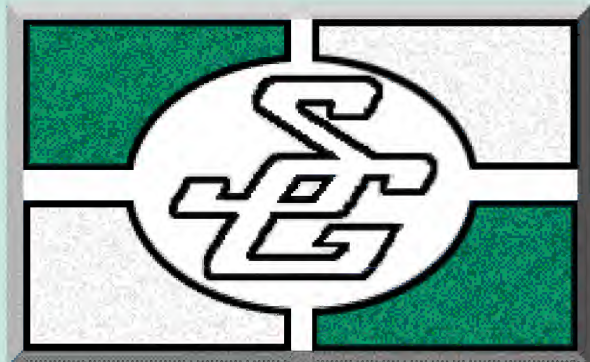
they get trapped. Please be smart! Keep your rake or hook all the way into the keyway until you get the cylinder to the bench. This will keep you from losing the wafers.

Photograph six gives you an excellent view of the ignition cylinder. In fact, since we have the retainer out it adds clarity to our references about the eight wafers.

Photograph seven shows the inside of the housing after the cylinder has been removed. Notice the small object protruding into the keyway on the left hand wall. That could give you a real problem replacing the cylinder if you don't know how to get it out of the way. Drop the bottom half of the shroud. You don't have to remove it completely, just remove the screws and place something between the shroud and the bottom of the wheel to keep it wedged apart. Then remove the rubber ring around the face of the lock.

On the rear side (the side closest to you, toward the steering wheel) you'll see a small hole. Take a broken pick or a piece of wire, and then use your little finger, reach into the keyway and depress this object. While it's depressed insert the pick/wire into the hole grab-

Continued on page 84



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Making A Good Impression

"Most locks that resist picking will yield to impressioning. By impressioning, you accomplish two things. The lock is open and a first key has been produced."

by Robert Sieveking

Of all the skills that a locksmith must master in order to be considered a professional, impressioning a first key must rank far above picking. Most locks that resist picking will yield to impressioning. A majority of the lockouts you encounter, will require that a first key be made by some means. Impressioning a key to open a lock, will accomplish two things. The lock is opened and a first key is produced in one operation. By compromising the lock without damage, the locksmith is

performing a professional service. Destroying a lock to gain entry, when a key could have been made by impression is most certainly not the mark of a professional. Finesse, that confident skill of the seasoned professional, will command the respect of your customers and peers alike.

Impressioning a first key also eliminates time consuming disassembly. Disassembly, whether to decode the pins or wafers to discover the cuts of the key, or to discover a code which could reveal the cuts to the key, uses

valuable time.

In order to achieve proficiency in the art of impressioning, you will need the proper tools and a technique that will give good results. Practice and experience are also factors that will improve your proficiency.

The only tools necessary to impression a good working key, are an impression file and a means of holding the key securely. Impressioning files are widely available from your locksmith distributors. Several companies manufacture them, and sometimes suitable

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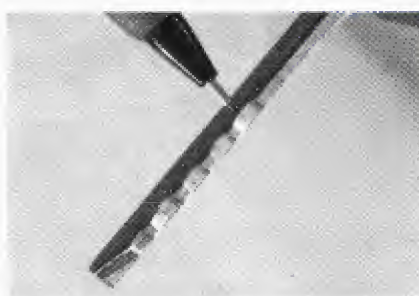
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files are carried as stock items in hardware stores. My favorite file uses a second cut or number two patterns. After having success with your file, you will probably prefer it over other types. But remember, there are many to choose from. A pair of four inch vise-grip pliers is one of the best tools for holding the key to be impressioned.

How do we get the key to mark, telling us to deepen the cut? How do we know when the cut is deep enough? How do we properly use the impression file, to make the witness marks easy to see? What do the marks on the key look like? What should the finished key look like?

Though it is not entirely necessary, it is very helpful to prepare the key. By cutting number one cuts on a code machine, the prepared blank will show the cut spacing or locations for the cuts. If the cut spacing is not known, or it is not possible to prepare the blank as above, it will be necessary to dress the edge of the key with a file to remove the plating and give the edge of the key a filed finish that will show the impression marks.

The filed finish on the edge of the key, if viewed through a microscope, would look very much like a plowed



1. Notice marks at one, two, and three.



2. Cut number four shows witness mark.

field. You would see closely spaced ridges of metal, each having a sharp edge caused by the teeth of the file as it cuts away the key. During the marking process, some of these ridges are deformed or rolled down by a pin in the lock. The microscopic ridges are ironed flat by the action of a pin, bound at the shear line by the turning force of the

key.

The impression or witness marks are areas of the filed finish that appear as a burnished spot, a rub or shiny mark on the edge of the key. Photograph one shows a witness mark. The pointer shows a mark at one on the key, but if you look closer, you will also see that there are marks at two and three also. (Cut positions are numbered from bow to tip on the key.) This key appears flat, the marks are not obvious.

In photograph two, the key has been angled slightly toward the light source. The marks are very plain when the light is direct and off at a steep angle to the key. As you can see, cut number four shows a witness mark that was almost invisible in photograph one. Photograph one and two show the same key. Only the angle of the key to the light source has been changed.

Another point that photographs one and two illustrate is the proper use of the key file. Note that the cuts were made with one pass of the file. The cuts are 90° to the key and flat.

Photograph three illustrates the appearance of a key that is cut improperly. Note that the cuts are not square to the key, and that the file angle changed as the cuts were made. (See



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3. Improperly cut key.

cuts one and five.) This key would be very hard to read. The impression marks become confused with the file marks as the key is angled toward the light.

The file technique becomes especially important when impressioning wafer locks. The ridges caused by sloppy file technique within the cut can make the marks extremely hard or impossible to see. The cuts in a hand filed key should give the appearance of being produced on a machine. This may require some practice and a little more care in filing the key, but the reward will be realized in clear impression marks that are easy to read and less time required to produce a working key.

Procedure:

Now that we have an idea of what the impression marks look like and what file technique will make the impression marks most obvious, let's examine a method of obtaining the witness marks from the lock. Some have termed the technique described here as the wiggle method. That term was most probably coined by someone that did not understand the mechanical principles that make impressioning possible. Wiggle is to impressioning as scribble is to handwriting.

Step One:

In photograph four, we see that the locksmith has secured a key in the vise-grip pliers and inserted the key into the lock. By lifting the handle of the pliers, without applying turning pressure to the lock, pins one and two, at the front of the lock, are lifted as high as they will go and pins five and four, toward the rear of the lock, will fall to the lowest position allowed by the key. Because of clearances between the key and the keyway, the key can be moved up and down in the keyway. In this lifted position, the key is turned to bind the pins at the shear line.

The key is bound in the up position.



4. Key is held by vise-grip pliers and inserted into lock.

(Great torque is not a requirement for good impression marks.) With the pins bound in this position, the locksmith gives two sharp jerks in a downward direction. The key, acting as a prying force, will force pins five and four in an upward direction within the lock. As the pins are forced up, they will deform the filed finish of the key, leaving a witness mark to show that the key was forcing the pin up.

If the cut in the key had been of the proper depth, the bottom pin would not have been bound at the shear line, and a mark would not be made on the key. Pins five and four will mark best in this first step. Pin three will mark to a lesser degree. This first step should be repeated two more times before proceeding.



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Step Two:

Apply downward pressure to the key, without turning pressure. In this position, the key is lifting pins five and four to their highest point, while allowing pins one and two to fall to the lowest point of their travel, allowed by the key. At this point, turning pressure is applied to the key to bind the pins at the shear line. Two sharp jerks in an upward direction will cause the bound pins to mark the key if they are bound at the shear line. Relax the turning pressure. Apply downward pressure to the key. Apply the turning pressure, and two upward jerks. Pins one, two and three are the marking pins in this step. Repeat this step one more time and remove the key to inspect the marks.

In this procedure, we mark the key with three times up, as in step one, and three times down, as in step two.

Step Three:

Read the marks on the key and file only those cuts that show a strong burnished or shiny witness mark. If there is dirt, graphite or any foreign material on the key, wipe the key with a coarse cloth to remove it. If a particular cut is not marking, after a few cycles of steps

one and two, the filed finish may look worn or dull. This is not a witness mark. Don't file it. Only file where you see a good mark. Different pin styles will make different marks. The flat bottomed chamfered pins found in Kwikset and Ilco locks will make a semi-circle mark on the key. The round bottom pins found in older Yale locks will make a smudged larger mark that may be difficult to see. The more pointed pins found in Schlage locks make very small center punch type marks on the key.

If the marks seem to be moving away from the center of your cut, this is probably because your cut is moving. If you apply side pressure on the file, while deepening a cut, the cut center will move away from the desired position. Correct the cut to keep the impression marks centered. When filing the key, file straight down. Don't allow your cuts to wander.

Photograph five shows the proper method of filing a key. Note that the file is held at a right angle to the key, the index finger is placed on top of the file to insure only downward pressure is applied and the wrist is held straight as the cut is made to insure that the cut is flat. Only about the first third of the



5. Proper method of filing a key.



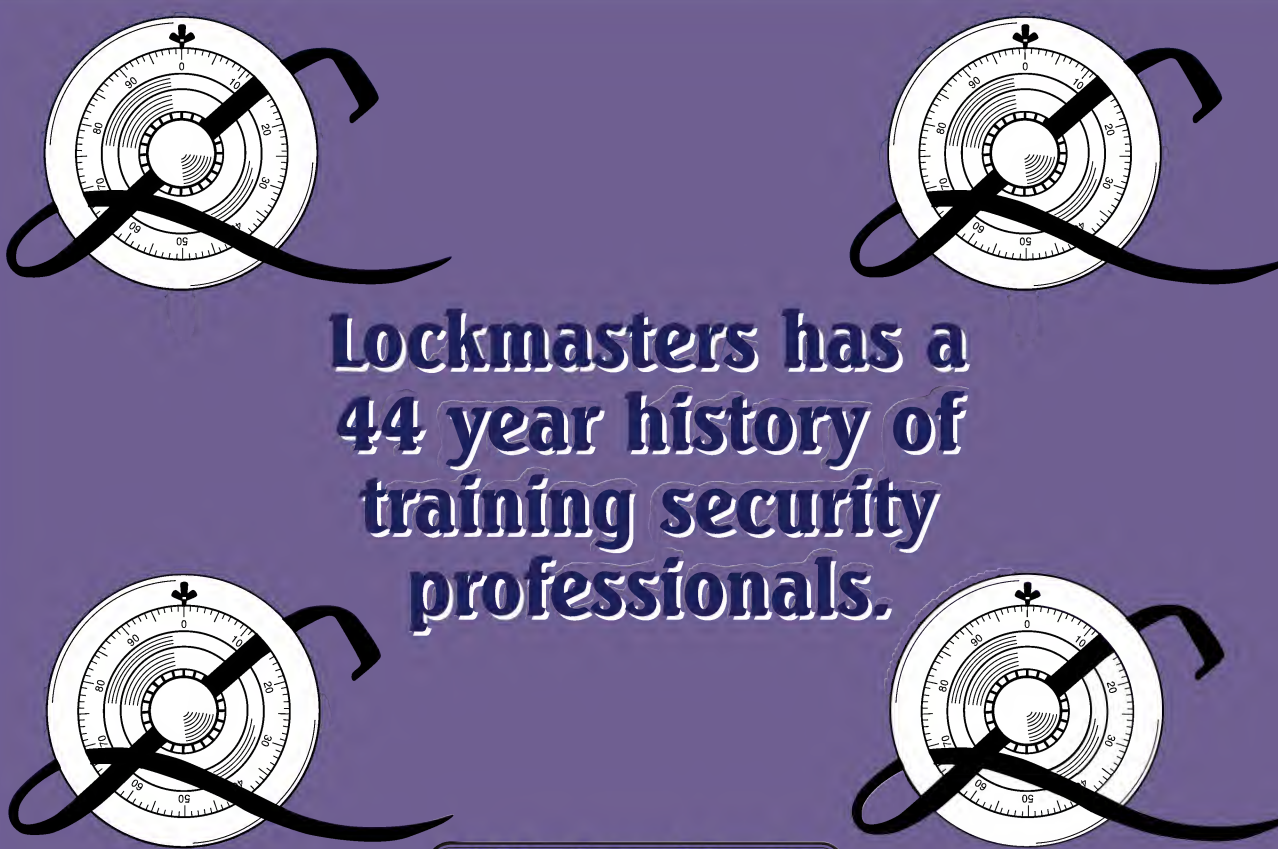
6. The impressed key.

file (the tip) is used to deepen the cut. The heel or base of the file becomes too wide to make a properly formed pin seat in the key. Widen the cuts by laying the file over left and right to establish the ramps between the cuts.

Photograph six shows the impressed key. Note that the angle of the ramps between the cuts is approximately equal for all the cuts in the key and the pin seats or cut centers are all relatively narrow. The cut profile of the completed key must enter the lock smoothly, without catching because of a steep ramp angle.

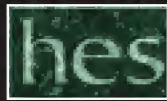
Impressioning to open or to make a key should be the locksmiths first option. If picking fails, impression. Don't drill!

Drilling should always be reserved as a last resort. ■



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Recombining American's 747

"The problem was simple. How to change the combination on this particular padlock without having any prior knowledge? Here is the answer."



by Steve Spiwak

The other day a fellow locksmith came into my shop. This gentleman was having a dilemma. Just a few months ago he had ordered two dozen American padlocks model number 747 for a very good customer. Now this same customer had to change all the combinations because he had fired his general manager. All the combinations

had to be changed in just a few hours. This was hardly enough time to research the problem.

His problem was simple. How could he change the combination on this particular padlock without having any prior knowledge? I knew the correct solution from having gone through this same problem some time ago. The assembly and disassembly is disarmingly tricky. Furthermore, no formal assembly/disassembly instructions come in the padlock box. Everyone that I contacted except one, could not give me a straight answer. The solution that I ultimately derived will be detailed in this article.

When first observing this unique and

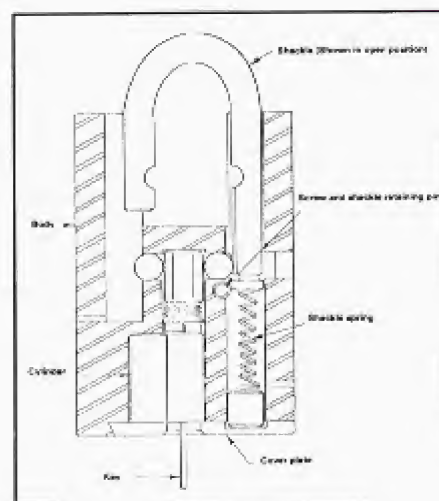


Illustration 1



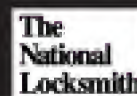
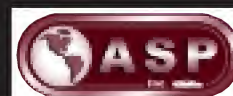
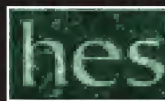
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very well constructed padlock (see illustration 1), the first thing that you notice is the shrouded shackle. This design prevents the most common method used to defeat padlocks, namely cutting the exposed shackle with a pair of bolt cutters.

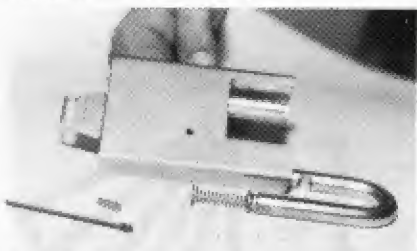
Since we had the keys it was not necessary to pick open the padlocks. We began the procedure by locating the screw and shackle retaining pin on the reverse side of the padlock. On all the padlocks that we examined there was material covering this hole. While this material did not conceal this particular space, it did indeed make it seem unlikely to be an important part of the disassembly procedure. (See photograph 2.)



2. Silver solder material removed to expose retaining screw.

The actual set screw itself was an Allen wrench variety—size 3/32". The set screw itself unscrewed easily enough, but the retaining pin was difficult to dislodge. This required a sharp rap on a soft pad that was placed over the workbench. The pin itself was then removed the rest of the way with a pair of tweezers.

The next step in the removal procedure is tricky. You must remove the shackle and shackle spring, but this should only be done by keeping your finger over the shackle as the lock is opened. (See photograph 3.) You must

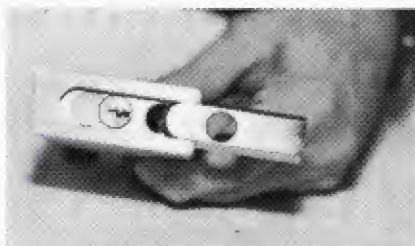


3. Allen type retaining screw, retaining pin, shackle, shackle spring, and 747 padlock with proper key inserted and turned.

next turn the key and *reinsert* the shackle only into the lock while it is in the open position.

Remove the key. Now you are ready to hold the lock in an upside down

position to slide the cover plate away from the lock and remove it. (See photograph 4.) Now you can remove the cover plate retaining bolt which will slide easily out of the niche which it occupies.



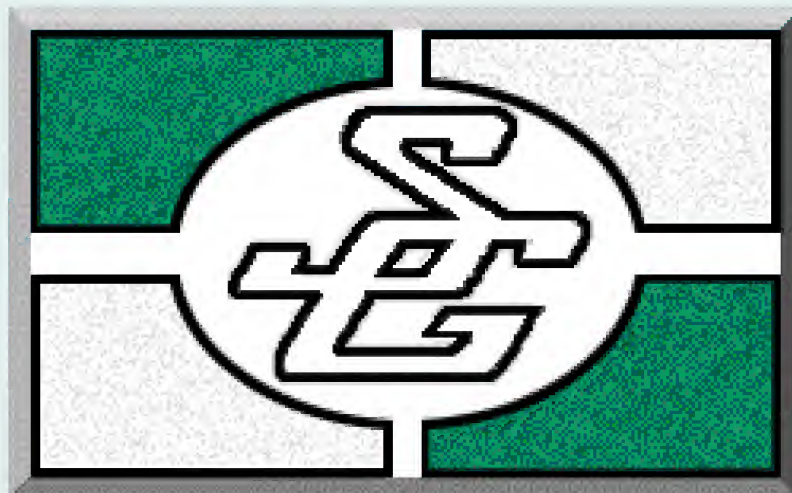
4. Cover plate being removed.

Next remove the cylinder. The core can be removed using standard procedure. Note that it uses a 6-pin key Ilco #1046A. Just remove the two



5. Rear view of the American padlock cylinder showing the retaining pins located at 12 o'clock and 3 o'clock.

Continued on page 84



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Masterkeying By Computer

"I have written a very simple program to calculate the masterpinning requirements of any cylinder using 0-9 increments, regardless of the system's format."



by Don O'Shall

If anyone ever fought the advent of computers into our workplace, it had to be me. I looked at what they did, and how much time they took before they were able to do it, and saw little value to it.

Indeed, many of the early programs that made their way into this trade could have been done with far less time

and effort manually.

I'm not one to do things just because they are "in" so I avoided computers, but I didn't stop watching them. Their popularity would have prevented that even if I wanted to. *And things have changed.*

Today, the unwieldy and useless programs of ten years ago have grown up. And they have grown into a truly formidable opponent...or a valued ally. They have gone beyond mere number generating programs for masterkeying, and taken on virtually all the aspects of masterkeying, including key control systems.

Today they can trace all the keys in a masterkey system, locate their respec-

tive cylinders, and identify everyone who had access to that key. They can determine if any of the keys for that combination have been lost and if they were, whether they have been found. Programs also help to increase the security around the system by removing virtually useless paperwork that might either be inappropriately discarded, or might be filed away unnecessarily.

A computer can take your customer base and calculate virtually every aspect of it to help in all the decisions you face, from inventory to pricing. Can you tell how many times you service each customer, what he usually needs, how much of a particular item

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you usually use, and how your overhead affects your pricing? The computer can, if you give it the right software.

Today that software abounds, and at reasonable rates for the most part. There are software packages designed around the multi-faceted locksmith shop, the institutional lock shop, etc. There are inventory packages, marketing packages, routine service (preventative maintenance) packages, and more! If you use a computer, you owe it to yourself to check out these possibilities.

As a little bonus this month, I include a very simple program that I wrote to calculate the masterpinning

requirements of any cylinder using 0-9 increments, regardless of the method or format used to develop the master-key system.

Rather than using one of the "better" languages, I wrote this on my IBM PC using BASIC version 1.12, and even then limited it to the simplest and most universal commands I could, even though it slightly increases the original keying-in time.

You should find this applicable to almost any equipment capable of handling BASIC commands, with only minor modifications, primarily with the "LOCATE" commands. If you

experience syntax errors on this initially, try replacing the word "LOCATE" with "PRINT AT" or "PRINT @," or by using the "TAB" command. As a last resort, place the information on the screen by combining PRINT: commands and PRINT " " commands.

If your computer doesn't support the ELSE command, the command lines containing IF clauses can simply be inverted as another command line.

For example, the command:
340 IF A>G THEN PRINT "BP "G;
ELSE PRINT "BP "A;
could be inverted into a second line, becoming:

```
340 IF A>G THEN PRINT "BP "G;  
345 IF G>=A THEN PRINT "BP "A;
```

Note that since the ELSE clause would have included not only the condition GREATER THAN but also EQUAL TO, we have had to include that change in our new line.

Also, some computers do not assign the value of zero to unnamed variables, so it may be necessary to use a numeric value in place of the < RETURN > option in screen ending lines to prevent endless loops from occurring on these machines.

Clear screen commands (CLS) may have to be changed or dropped entirely on some machines.

You should find these changes relatively simple to determine the necessity of, since your machine's BASIC interpreter will inform you of the line where any syntax errors (indicating the need for changes as listed above) might occur. The changes as listed have allowed it to work on several pieces of equipment that I had access to.

Those of you who are "computer literate" will notice that this is essentially a very simple program. It only takes a few minutes to key it in and "SAVE" it, and once it is, it can be run in about a half a minute for the first change key on a typical computer (less on some) and the additional change keys at about six seconds each. The master key is printed on the screen for the first key so that you can be sure that it has been entered correctly, but only the change key and pinning continue to show after that, to reduce the possibility of someone unauthorized looking over your shoulder and learning the master key bittings.

It includes no printer options (although most computers have a way of allowing you to "print screen" if you wanted to for some reason), so you aren't left with a pile of papers on



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Article continued on page 66

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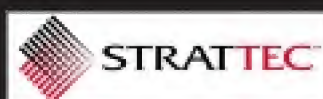
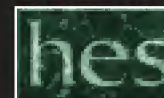
10 CLS
20 LOCATE 8,8
30 PRINT"MASTERPINNING CALCULATOR"
40 LOCATE 10,14
50 PRINT"BY DON O'SHALL"
60 LOCATE 14,5
70 PRINT"Copyright 1987,Allentown,Pa,USA"
80 LOCATE 15,12
90 PRINT"ALL RIGHTS RESERVED"
100 LOCATE 21,1
110 PRINT:INPUT"PRESS RETURN (ENTER) TO CONTINUE";X
120 IF X<>0 THEN GOTO 100
130 CLS
140 PRINT"PRESS COMMA AFTER EACH NUMBER"
150 PRINT
160 PRINT:INPUT"MASTER KEY CUTS";A,B,C,D,E,F
170 IF A>9 THEN 150
180 IF B>9 THEN 150
190 IF C>9 THEN 150
200 IF D>9 THEN 150
210 IF E>9 THEN 150
220 IF F>9 THEN 150
230 CLS
240 PRINT:INPUT"CHANGE KEY CUTS";G,H,I,J,K,L
250 IF G>9 THEN 230

```

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which you have worked out the pin calculations, and now must decide how to properly dispose of. Do you have a shredder? If not, then either most of these calculations end up in the waste pile, where a janitor or garbage man can pick them up, or they end up being filed with the rest of the records about the system...usually in a simple file cabinet, due to the volume of paper involved.

With this program there is no residue when the pinning calculations are finished. It works on one at a time, and

even though it retains the master key bittings throughout the calculations, once it returns to your computer's operating system, it remembers nothing about what it did, including the master key bitting. That is one advantage of a computerized file over a "hard copy" paper file, at least for this one type of usage.

The only tough part of using this simple program is remembering to enter a comma after each of the bittings of both keys (but not at the end of

each). Although the system is designed for six pin calculations, it can be used for five pin locks just by using a zero in the final position on both keys, and remembering not to pin that position.

You can go a step farther by the entries:

```
573 LOCATE 17,1
575 IF F=0 AND L=0 THEN
PRINT" FOR 5 PIN LOCKS,"
577 IF F=0 AND L=0 THEN
PRINT" IGNORE SIXTH
POSITION"
```

```
260 IF H>9 THEN 230
270 IF I>9 THEN 230
280 IF J>9 THEN 230
290 IF K>9 THEN 230
300 IF L>9 THEN 230
310 PRINT
320 PRINT
330 PRINT
340 IF A>G THEN PRINT"BP "G;ELSE PRINT"BP "A;
350 IF B>H THEN PRINT H;ELSE PRINT B;
360 IF C>I THEN PRINT I;ELSE PRINT C;
370 IF D>J THEN PRINT J;ELSE PRINT D;
380 IF E>K THEN PRINT K;ELSE PRINT E;
390 IF F>L THEN PRINT L ELSE PRINT F
400 IF A>G THEN PRINT"MP "(A-G);
410 IF G>A THEN PRINT"MP "(G-A);
420 IF A=G THEN PRINT"MP - ";
430 IF B>H THEN PRINT (B-H);
440 IF H>B THEN PRINT (H-B);
450 IF B=H THEN PRINT" - ";
460 IF C>I THEN PRINT (C-I);
470 IF I>C THEN PRINT (I-C);
480 IF C=I THEN PRINT" - ";
490 IF D>J THEN PRINT (D-J);
500 IF J>D THEN PRINT (J-D);
510 IF D=J THEN PRINT" - ";
520 IF E>K THEN PRINT (E-K);
530 IF K>E THEN PRINT (K-E);
540 IF E=K THEN PRINT" - ";
550 IF F>L THEN PRINT (F-L);
560 IF L>F THEN PRINT (L-F);
570 IF F=L THEN PRINT" - ";
580 PRINT
590 PRINT"PRESS 1 FOR NEXT CHANGE KEY"
600 PRINT:INPUT"OR <RETURN> TO EXIT";Z
610 IF Z=1 THEN CLS:GOTO 240
620 IF Z<>0 THEN 580
630 CLS
640 END
```


We Remember...



Robert and Lee Rognan toast each other at a locksmith banquet some years ago.



Nathan and Sylvia Schwartz.



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Humor:

One More Night Call...

"I grabbed my jacket and headed down the steps. As I flipped off the light a little voice rang out, 'I have to go to the bathroom.'"

by Bobby DeWeese

It was 5:15 a.m. when I awoke to the four part harmony of my wife and our three year old son in the middle of their nightly snore-off, the T.V., and the faint ringing of the telephone coming from the kitchen. Now mind you, any combination of the first three usually has no effect on my comatose condition. However, let the phone ring and my eyes pop open like someone just plugged me in. We used to keep a phone next to the bed, but my wife got tired of peeling me off the ceiling, every time it rang in the middle of the night.

I scrambled for the T.V. remote, quickly located what I thought was the mute button, and proceeded to jam my thumb down onto the volume-up switch. This mistake in judgement was greeted by a few choice words from my wife; little Bobby kept snoring. Once I found the real mute button, I decided to let the answering machine screen the call.

I lay motionless, praying for it to be a wrong number. I shoot for a pool league on Wednesday nights, so Thursdays aren't exactly my best mornings. I try not to get up until I have to.

As luck would have it, it was the dispatcher for a customer that I hadn't heard from in a long time. I did the old "Zen coin flip," (that's where you don't need a coin, and you have a much larger control over the outcome) and decided to answer the call.

It seems one of the mechanics moved the boss' 87 Mercedes while the "Big Cheese" was out of town. When he went to put it back, he broke the door key off in the ignition lock. To top it all off, while it was parked in the wrong place, it was hit by one of the man's own trucks.

Although I know I should, I don't really do foreign cars. But, seeing that they were only a few blocks away and I did feel sorry for them, I figured I'd give it a shot. I really had nothing to lose, and I might even learn something!

As I stumbled through the hall and into the bathroom, I was abruptly "clotheslined," by the Home Spa cord strung from over the shower curtain to the light fixture. Trying to figure out what was happening, my hand went for the light switch. The light, now hanging from the wall at a 45 degree angle, was now shining directly into my eyes...all 150 watts of it. That woke me up. Quick!

On the way down the steps, I grabbed the light jacket that I had worn the night before. As I flipped off the light, a little voice rang out from behind a bedroom door. "I gotta go to the bathroom!" said the sleepy, but determined voice. Back upstairs I went.

When I finally hit the outer door, I found that a fifty degree night, had turned into an eighteen degree morning. If the bathroom light didn't do it, I was definitely awake now.

A few minutes later, I was pulling onto the customer's lot. I parked next to a grey Mercedes with a nasty gash down the side of it. As I passed the car, I noticed a couple of screwdrivers and a pair of pliers, sitting on the front seat. And we all know what that means. So, I went inside to hear the inevitable.

A man, sweating bullets and looking through the Help Wanted section, let out a sigh of relief saying "Thank God you're here! I tried for about an hour, but I couldn't get it out. Matter of fact, I think I wedged it in tighter!"

"Imagine that," I said. I was going to

tell him all about how he may have turned a sixty dollar job into a hundred dollar and up job, but I figured, what's the point?

Upon inspection, I discovered that he hadn't destroyed anything. However, the broken end of the key had been twisted and mangled in the earlier, feudal attempt to remove it. After about twenty minutes, I decided that I was wasting my time. Normally, I would have tried to figure it out on my own, removed the lock, broken it down, and taken the key out that way. Normally. But a Mercedes Benz isn't exactly a "normal" car. I didn't want to pay that kind of money for anything I may have broken in the process. Even if it was a "learning experience."

After calling another locksmith I know, to bail out my customer and me, I decided to stick around and watch. If I wasn't going to make any money off the job, at least I'd learn something, (besides a lesson in not biting off more than I could chew). About the time my colleague was arriving, my beeper went off. It was a lock-out about five miles away. With mixed emotions about leaving now, after all this, I thanked the other locksmith for coming, wished my customer luck on keeping his job, and drove off into the sunrise.

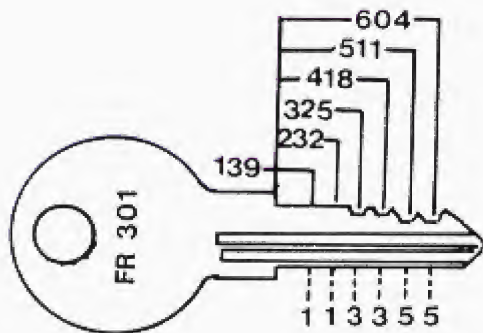
When I arrived, I found the car with a coat hanger sticking out of the door. The owner, on the other hand, was another story. Inside the "greasy spoon" where the customer had called from, a sleazy looking cook said, "Yeah! He was here. Baried a hanger n' used da' phone. Ain't seenum' since."

After waiting around for a half hour, I decided to "hang it up." I finished off my McMuffin and went home. Oh yeah, before I laid back down, I called my supplier and ordered a book on foreign car servicing. ■

Chicago Codes

2001X-3000X

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K-101 K-103
K-102 K-104
K-100M (Master)

DEPTHS

0-		5-	0.190
1-	0.250	6-	
2-	0.235	7-	
3-	0.220	8-	
4-	0.205	9-	

KEYWAYS

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2001X-3000X CHICAGO

Keyblanks:

Original	K101	K102	K103	K104
Ilco	101AM	102AM	103AM	104AM
HPC	N/A	N/A	N/A	N/A

2251			2301			2351			2401			2451		
51	355511	K102	01	313135	K102	51	315533	K102	01	113533	K102	51	515553	K102
52	511513	K102	02	315151	K102	52	331535	K102	02	115535	K102	52	531555	K102
53	513515	K102	03	331153	K102	53	333551	K102	03	131551	K102	53	113155	K102
54	515531	K102	04	333155	K102	54	335553	K102	04	133553	K102	54	115311	K102
55	531533	K102	05	335311	K102	55	351555	K102	05	353153	K102	55	131313	K102
56	533535	K102	06	351313	K102	56	351151	K102	06	111535	K102	56	133315	K102
57	133131	K102	07	353315	K102	57	113335	K102	07	113551	K102	57	135331	K102
58	135133	K102	08	355331	K102	58	115351	K102	08	115553	K102	58	151333	K102
59	151135	K102	09	511333	K102	59	131353	K102	09	131555	K102	59	153335	K102
60	153151	K102	10	513335	K102	60	553151	K102	10	111553	K102	60	155351	K102
61	155153	K102	11	515351	K102	61	135511	K102	11	531151	K102	61	311353	K102
62	311155	K102	12	531353	K102	62	151513	K102	12	113133	K102	62	313355	K102
63	313311	K102	13	533355	K102	63	153515	K102	13	115135	K102	63	315511	K102
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65	331315	K102	15	551513	K102	65	311533	K102	15	133153	K102	65	333515	K102
66	351335	K102	16	553515	K102	66	313535	K102	16	135155	K102	66	335531	K102
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73	533531	K102	23	333151	K102	73	131511	K102	23	335355	K102	73	115315	K102
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75	551535	K102	25	351155	K102	75	135515	K102	25	353513	K102	75	535151	K102
76	133113	K102	26	353311	K102	76	151531	K102	26	355515	K102	76	135335	K102
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88	511351	K102	38	313113	K102	88	151535	K102	38	153331	K102	88	115131	K102
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92	533513	K102	42	115333	K102	92	111513	K102	42	315353	K102	92	151153	K102
93	535515	K102	43	131335	K102	93	113515	K102	43	331355	K102	93	153155	K102
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96	135111	K102	46	151355	K102	96	133535	K102	46	351515	K102	96	313315	K102
97	151113	K102	47	153511	K102	97	135551	K102	47	353531	K102	97	315331	K102
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00	311133	K102	50	313531	K102	00	111531	K102	50	513551	K102	00	353355	K102



2001X-3000X CHICAGO

Keyblanks:

Original	K101	K102	K103	K104
Ilco	101AM	102AM	103AM	104AM
HPC	N/A	N/A	N/A	N/A

2501				2551				2601				2651				2701			
01	355511	K103		51	313135	K103		01	315533	K103		51	113533	K103		01	515553	K103	
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38	511351	K103		88	313113	K103		38	151535	K103		88	153331	K103		38	115131	K103	
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47	151113	K103		97	153511	K103		47	135551	K103		97	353531	K103		47	315331	K103	
48	153115	K103		98	155513	K103		48	151553	K103		98	355533	K103		48	335351	K103	
49	155131	K103		99	311515	K103		49	153555	K103		99	511535	K103		49	351353	K103	
50	311133	K103		00	313531	K103		50	111531	K103		00	513551	K103		50	353355	K103	



2001X-3000X CHICAGO

Keyblanks:

Original	K101	K102	K103	K104
Ilco	101AM	102AM	103AM	104AM
HPC	N/A	N/A	N/A	N/A

2751				2801				2851				2901				2951			
51	355511	K104	01	313135	K104	51	315533	K104	01	113533	K104	51	515553	K104	51	515553	K104	51	515553
52	511513	K104	02	315151	K104	52	331535	K104	02	115535	K104	52	531555	K104	52	531555	K104	52	531555
53	513515	K104	03	331153	K104	53	333551	K104	03	131551	K104	53	113155	K104	53	113155	K104	53	113155
54	515531	K104	04	333155	K104	54	335553	K104	04	133553	K104	54	115311	K104	54	115311	K104	54	115311
55	531533	K104	05	335311	K104	55	351555	K104	05	353153	K104	55	131313	K104	55	131313	K104	55	131313
56	533535	K104	06	351313	K104	56	351151	K104	06	111535	K104	56	133315	K104	56	133315	K104	56	133315
57	133131	K104	07	353315	K104	57	113335	K104	07	113551	K104	57	135331	K104	57	135331	K104	57	135331
58	135133	K104	08	355331	K104	58	115351	K104	08	115553	K104	58	151333	K104	58	151333	K104	58	151333
59	151135	K104	09	511333	K104	59	131353	K104	09	131555	K104	59	153335	K104	59	153335	K104	59	153335
60	153151	K104	10	513335	K104	60	553151	K104	10	111553	K104	60	155351	K104	60	155351	K104	60	155351
61	155153	K104	11	515351	K104	61	135511	K104	11	531151	K104	61	311353	K104	61	311353	K104	61	311353
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63	313311	K104	13	533355	K104	63	153515	K104	13	115135	K104	63	315511	K104	63	315511	K104	63	315511
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67	353351	K104	17	153111	K104	67	315551	K104	17	151311	K104	67	351533	K104	67	351533	K104	67	351533
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89	513353	K104	39	315115	K104	89	153551	K104	39	155333	K104	89	131133	K104	89	131133	K104	89	131133
90	515355	K104	40	111315	K104	90	155553	K104	40	311335	K104	90	133135	K104	90	133135	K104	90	133135
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95	553533	K104	45	135353	K104	95	131533	K104	45	335513	K104	95	311313	K104	95	311313	K104	95	311313
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00	311133	K104	50	313531	K104	00	111531	K104	50	513551	K104	00	353355	K104	00	353355	K104	00	353355

Shop Talk

Helpful Questions and Answers

Written by *all* of the following authors: Jack Roberts, Steve Spiwak, Shirl Schamp, Robert Sieveking, Don O'Shall, and Dave McOmie.

Send your locksmith questions, along with a self-addressed stamped envelope to: Shop Talk, *The National Locksmith*, 698 Bonded Pkwy., Streamwood, IL 60107.

Q: I have recently had lockout calls on two Toyota Supras; both late model 1986 and 1987. In both cases I tried all the usual methods to no avail. Also, in both cases, I ended up cutting keys by sight. (Fortunately they were not in the ignition).

My question is this, is there any tool available for this car for opening?

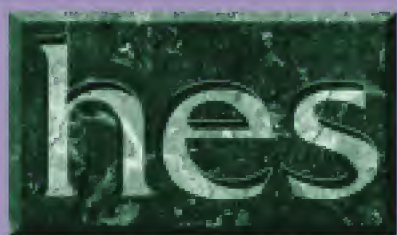
Ken Mastin
Georgia

A: To open the 1987 or 1988 Toyota Supra is as follows. The characteristics are linkage/horizontal, lock/unshielded, pawl/rigid. Here are a couple of suggested methods: Horizontal tool/lock rod, across the car tool/lock unit. For the horizontal tool/lock rod, use a flex light and a wedge and insert a wedge allowing enough room to insert a flex light. This will enable you to look into the door and see the horizontal locking rod. If there are two rods, the top one is usually the locking rod; the bottom one is the inside handle. If you go for the wrong one first, the inside handle will move.

Now that the rod is visible, place the

tool into the door and connect with the rod, catching the rod in the "U" shaped bend on the end of the tool. Apply a little torque binding the tool on the rod. Now you should be able to move the rod in either direction. Open the car.

Across the car tool/lock unit. First wedge the driver's window. Remember to cushion your pry tool with a rag or at least a business card. Insert a wedge. Insert the across the car tool and go across the car. Place the tip of the tool against the locking unit latch and push. The slide is in the unlocked position when it is forward exposing a red or orange flag. This tool is very handy, being a long stiff wire that you can insert through a window and push it clean through to the other side of the



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car to manipulate buttons or handles. 02

Q: My question concerns the "A" Series Weiser doorknobs and the Weiser shim pick tool. These locksets are very popular in my area and I've been looking for an easier method for removing the cylinders from the knobs.

So far, I've been getting nothing but mixed reactions about this tool. Does it actually work? Are there other tools and or methods for removing these cylinders short of taking the knob off the door? Any information on this subject matter would be greatly appreciated.

Kris Maddalena
Arizona

A: If you have "mixed feelings" about this tool, then you have a fairly good grasp of the situation. Yes, the tool does work, but as to whether it will save you time and effort on a particular job is another matter entirely.

In use, the tool is inserted into the keyway alongside the center of a properly operating key on its right side. It pushes the spindle rod back far enough to allow the cylinder to be released when the key is turned to the removal position. (See illustration 1.) Most of the time it will do this with little trouble. But putting the cylinder back in will also require the spindle rod to be

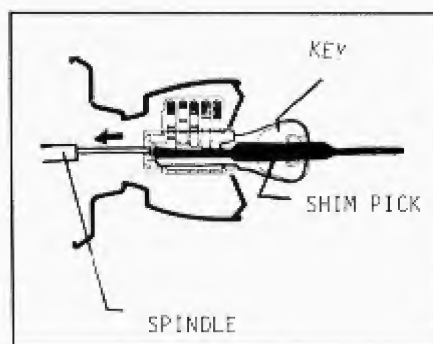


Illustration 1

pushed back. This can be some trouble.

Over the long run, this tool will probably save you more time on jobs than it costs you, making its use justifiable. But if you are expecting it to save a little time on a particular job, where you really need to shave time, it may not do so.

In short, "mixed feelings." On the other hand, the tool is almost ridiculously inexpensive, so why take my word on its performance? The best way to evaluate it is to pick up a few and try them out. If you find you like the way they perform, continue using them. If not, throw them away. You probably spend more money, time and energy at the local burger joint each day than this will take. 05

Q: Enclosed is a photograph of a safe from the Trumbull Safe and Vault Co., Chicago, IL. (See photograph 2.) It has a Yale lock and T-handle with the number 57258 stamped on it.



2. Trumbull safe.

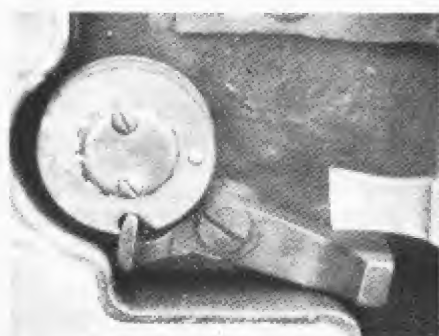
The size of this safe is 26" W x 32 1/2" x 25 1/4" W. I would like any information you can give me on this safe. The combination has been lost and I need to know how to open it.

Ken Ridgway
Illinois

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A: Ken, my guess is that you have a J. Baum, with one of the two types of locks they commonly used. They used Yale's OB lock, and also used their own imitation of the OB, shown in photograph three.



3. Trumbull Safe's version of the Yale OB lock.

The first approach should be manipulation. Failing that, get out your drill and angle in to the lock from above the dial ring and transfer your readings to drop-in, which is approximately 50.

04

Q: Can you furnish me with the depths and spacings for the LeFebure Model PL-80 lock. I have been unable to obtain this information from the LeFebure service center. The lock has four levers with depths that can be changed without disassembly of the lock by using a change tool.

Also, do you know of any company that makes key blanks for this lock? Any other information you can provide about this lock will be appreciated.

*Don Stevens
North Carolina*

A: If you are in possession of a LeFebure model PL-80 lock, you are also in possession of all the information that you need to make a working key. Also you should be able to develop the depth and spacing for the key from the lock.

After considerable conversation with the national marketing director of the LeFebure Corp., I suddenly realized that I was the only one talking and that they were not interested in supplying me with information of any kind. I also found that I could not buy a lock to use as an example to answer this question. I've found that some companies that manufacture high security locks and locking devices are not particularly impressed by the locksmith trade in general. That's life pal.

The banking institution that owns the LeFebure locks that you want to service, probably also buys a service contract on an annual basis that stipulates that any and all lock service performed within the institution be performed by LeFebure technicians. By restricting key blank availability, service information and repair or service parts, the manufacturer is able to feed its own service staff with guaranteed customers. Replacement parts pricing to the locksmith is also a method of restricting service of their products. If the parts are available to the locksmith, the price is the same or higher

than the end user would expect to pay.

If you are bent on servicing these locks, the easiest method of determining the depth and space information for the keys would be to measure keys in adjacent unit that use the same locks. The PL-80 lock is used in under counter teller units. If the lock uses a restricted keyway, as some higher security locks do, you may be treading on shaky ground by manufacturing the blank. Almost anything is possible, but some things are just not profitable. Good luck.

06

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Q: As a university locksmith, I found the book on Interchangeable Core Lock Servicing offered by The National Locksmith a real plus. However, I recently ran into a situation that I could use some help on.

Most of my experience has been with Corbin locking hardware, but I have serviced Best Locks in the absence of the residence locksmith. However, recently a new building was added to the academic area. This building uses Falcon interchangeable core locks, which were installed, according to the building's previous owner, by a local locksmith who went out of business. The owner says that he was never given a core (control) key.

I know that I could drill out all these cores, but that seems like a lot of unnecessary butchery. Is there an easy way to create a core removal key for these, or should I simply replace them with new cylinders?

*Ralph Sommers
Pennsylvania*

A: Drilling them all out would indeed be a real waste of time and materials. First try to pick one to the core removal position. If you can get an undamaged core in your hands, decoding the control key is a snap. If you can't pick one, removing a cylinder and opening the back of it (by drilling a small hole if necessary) so that it can be shimmed at the control shearline is another alternative.

As a last resort, put a blank into the lock core to raise all the pins to their highest, and drill for the control shearline.

Any of these methods will allow you to get a core into your hands. Once you have it, carefully remove the pin retainer cap (a slide cap on the Falcon) and remove the springs. Be careful not to dump the pins.

Measure the drivers (top pins) in each of the positions, starting with the tip position. Only the driver need be measured, not the control pins or master pins.

Comparing it with the following chart will give you the control cuts:

Driver Length	Control Key Cut
.162	0
.150	1
.137	2
.125	3
.112	4
.100	5
.087	6
.075	7
.062	8
.050	9

The above chart is only for locks using the A2 system depths, of course, which is

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standard for Arrow, Eagle, Falcon, etc. Make sure that if you cut the key on a code machine, you use the appropriate depths for this, and not the depths for Best A3 or A4 systems. 05

Q: A customer brought a lock in to have keys made. The name on the front is Schroder. The cam has these letters on it: ERYUXS. There is a 2 on the back of the lock. I can't find a key that will go in it. Maybe someone could tell me what key to use. I did get it picked open. The pins are very big.

A: Well, you have an oldie but a goodie. Your cylinder was manufactured by The Schroder Lock Co. in Cincinnati, OH, and was popular in the mid-west in the early part of the century. The Schroder Co. had a full line of door hardware, and many special designs for special applications. This hardware is usually found on public buildings and on the more expensive homes and estates.

Originally Schroder used the Eagle keyway, Ilco 1014, with standard pins. They later changed to their own keyways which are known as ABCDE, and also have restricted keyways, AA BB CC DD EE, which are the reverse of ABCDE. Cylinders with single or double letter keyways use the larger 0.125 pins. The letters ERYUXS are the code for the cylinder which is derived from ASECURITY in this manner:

A	S	E	C	U	R	I	T	Y		X
1	2	3	4	5	6	7	8	9	Repeat	

The code for your cylinder is 369552. Note that the "X" comes after the "U" which is a "5", so the 5 is repeated. The spacings are: .180, .330, .480, .630, .780, .930 and the depths are 1 = .174, 2 = .192, 3 = .210, 4 = .228, 5 = .246, 6 = .164, 7 = .282, 8 = .300, 9 = .318.

If your cylinder is a standard ABCD or E keyway, you can use the Ilco 1126 M blank which is the master blank for these keyways. I don't recommend using this blank as it is very sloppy in the keyway, is very thin and prone to breaking. I can't tell which keyway your cylinder might be, but you could possibly order a few of each, ABCDE, from Cincinnati Schroder Co., 7130 Dillward, Cincinnati, OH 45216.

If you happen to have a double letter keyway, these are restricted and no blanks are available. Cincinnati Schroder will not sell them under any

circumstances except to the original user, and then they only will supply the cut keys. You can, however, use a Sargent blank, Ilco 1007KMA, which will fit any of the double letter keyways and make an operating key for your customer. Lots of luck and thanks for writing to *Shop Talk*. 03



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Technitip's

Continued from page 15

stores that deal in model airplanes. The tool enters above the drawer and is used to depress the locking bolt on the push lock, unlocking the cabinet without the necessity of picking lock. Illustration eight shows the tool and the dimensions that have worked best for me. The tool can be used in various positions. I understand that this tip will not work on all file cabinets, but it does work on some.

Wesley Sherrod
Oklahoma

Editor's Note: Here is a tip that I have written myself and I think it will be of interest to you.

Ford Motor Company has introduced a new car to their line of foreign imports. The Festiva locks are the same as those found on the current Mazda autos. These locks use the same keyway and codes as the Mazda. Dealer supplied after market keys are made in Canada. Photograph nine, shows the Mazda and Ford keys in comparison.



9. Mazada and Ford keys.

The two outside keys are Ford. The two inside keys are Mazda.

The Festiva used the X131 (Taylor) key profile. The codes used are the 6500 to 7733 series. Codes should be found on the passenger door lock cylinder. Unlike the Mazda, the key codes on the original keys are not stamped on the bow of the key. The Ford keys have the codes on an aluminum tag which accompanies the original keys. The eight-wafer design reads and impressions quite easily, so if you're squared away on the Mazda, the Festiva will be nothing new. Sure looks like a Yugo doesn't it? (See photograph 10.)



10. New Ford Festiva.



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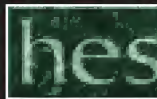
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Letters

Continued from page 6

I own Dave's safe opening book also, and it has been very helpful many times. Keep up the good work, I look forward to your magazine every month.

Brad Young
Ohio

Keyblank Tip For Corsica/Beretta Keys

Eric Sundin's Technitip in the December 1987 issue of *The National Locksmith* caught my attention. Mr. Sundin noted lack of availability of key blanks for Corsica/Beretta Chevrolet models. Briggs & Stratton has made these keys available to its authorized distributors since January 1987.

The part number for this extended length molded key is 593942. This would be the professional choice rather than cutting the shoulder of standard "C" key blanks.

Curt Larson
Briggs & Stratton
Wisconsin

Precis

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bing the object and holding it in place. While holding, insert the cylinder back into the housing. Study photograph eight; one picture is worth a 1000 words.

Photograph nine shows how the new



8. Replacing the ignition cylinder.



9. Factory key blanks showing code tag.

keys come and the only place you find the code. That picture also reminds me that if you don't have the key blank with you, you could get by with a Taylor X7. The X7 has a comparable blade, but in the top or bottom of the shank portion (depending which way you are looking at it) the land (meaty area) is the thickness of the blank. On the X160 that land has been removed, so you must remove it on the X7.

I tried this to see if it would work. I duplicated the factory key onto an X7. When I tried the new key I saw it just didn't go in far enough so I removed those lands allowing the blank to enter farther. It worked perfectly. ■

Padlocks

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retaining pins located at the 12 o'clock and 3 o'clock positions (see photograph 5). Insert the undersized follower and repin the lock to the new combination.

To reassemble, insert the repinned cylinder back into the padlock, without the key. Now slide the cover plate through the track in the base of the lock over the cylinder. Insert the new key into the cylinder. Turn the key and remove the shackle. Remember, to remove the shackle, insert the shackle spring into the shackle, and replace both the shackle spring and the shackle into the padlock body. You may now release and remove the key. Finally, replace the shackle retaining pin, and insert and tighten the Allen retaining screw firmly in place. Finish the procedure by putting in some silver solder or other suitable material to cover the retaining screw opening. ■



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